THE

Journal of the American Medical Association.

EDITED UNDER THE DIRECTION OF THE BOARD OF TRUSTEES.

PUBLISHED WEEKLY.

VOL. XII. CHICAGO, MARCH 30, 1889. No. 13.

ORIGINAL ARTICLES.

THE TREATMENT OF GLYCOSURIA.

Read before the Chicago Medical Society, March 18, 1889.

BY CHARLES W. PURDY, M.D.,

OF CHICAGO, ILL.

It is customary to consider glycosuria under two forms: *First.*—A milder manifestation of the disease in which only small amounts of sugar appear in the urine, and these often intermittently; while the general health of the patient suffers little or no disturbance. *Second.*—A more severe type of the disease characterized by excessively saccharine urine, great thirst, polyuria, emaciation, etc., leading more or less rapidly to extreme marasmus and death. The first form is chiefly of reflex origin, and hence its milder type and rarely fatal termination; while the second form is doubtless of central origin, and consequently more pronounced and serious in its consequences. In a systematic consideration of the management of glycosuria it is important that these two types of the malady be constantly kept in mind.

Physiological chemistry has shown us that glycosuria expresses itself chiefly through disturbance of the glycogenic function of the liver. Claude Bernard extended our knowledge a step farther, and showed that the elemental cause consists of some disturbance of the central nervous system, closely corresponding to the vasor-motor centre. All attempts, however, to unravel the nature of this disturbance through the aid of morbid anatomy have proved thus far entirely futile. It is well to remember, however, that in careful scientific research, failure often teaches us valuable lessons, and, indeed, often furnishes useful information. The very fact that the study of morbid anatomy in glycosuria has failed to reveal uniform and tangible lesions of the central nervous system goes far to form a presumption that if lesions exist in these cases they can scarcely be sufficiently grave in themselves to cause fatal results. Our present knowledge of the nature and course of glycosuria is quite in harmony with this presumption; for indeed we find the cause of death uniformly to depend upon the perverted function of organs widely apart from the brain. Moreover, if the perverted function of these organs can be corrected and held under control the patient may survive almost indefinitely.

Without entering into the discussion of the many theoretical questions with which, unfortunately, our knowledge of glycosuria is at present so deeply involved, let us more practically inquire, What facts have we at command upon which to base a rational system of managing the disease? We know that the chief expression of glycosuria is a perverted elaboration of the hydrocarbon foods in the liver, resulting in their conversion into grape-sugar. We know that the surcharging of the blood with large quantities of this sugar, not only gravely alters the nutritive qualities of the blood; but it is also liable to induce chemico-toxic changes in that fluid, which are dangerous to life. We know, in short, that the perverted elaboration of so large a proportion of the food supply as that of the hydrocarbonaceous, the saturation of the tissues with the resulting morbid products, and the necessary efforts at their elimination, lead to altered nutrition, emaciation, wasting of the vital forces of the economy, secondary disease of important organs; and to that complex of morbid processes that in glycosuria bring about exhaustion and death. Now, obviously, if we can succeed in cutting off completely the supply of such foods as are prone to faulty elaboration—for the most part the hydrocarbons—we shall not only arrest the perverted liver function; but we shall also save the system from the damaging effects of the morbid products poured into it through faulty elaboration of food, and thus practically arrest the regressive changes that lead to such grave results.

If we had to deal only with the purely hydrocarbon foods as the exclusive source of sugar production in the economy, our problem would be a comparatively simple one; since a thoroughly nourishing and sustaining diet can be furnished exclusive of these. But while the hydocarbons are the chief, they are not always the only source of sugar production. Experimental investigation has shown that when animals were fed on purely nitrogenous foods—even for lengthy periods of time—a small amount of glycogen still continued to be present in their livers. In the most grave forms of diabetes, the "sugar-forming vice" of the organism

becomes so strong that the liver seems capable of splitting up a portion of the nitrogenous foods, and even of the albumenoids of the tissues, and of transforming a part of these into sugar. Fortunately such cases are for the most part long-neglected or advanced ones. Although much may be accomplished even here in retarding the disease, yet it may, as a rule, be considered progressive towards a fatal termination.

The sugar-forming powers of the organism in glycosuria are feeblest in their operation upon nitrogenous materials; indeed in the early stages of the disease it is probable that these always escape sugar transformation. Next in order, come the green parts of certain vegetables, which very strongly resist sugar transformation. The hydrocarbons offer the least resisting power of all foods to sugar transformation, and of this class starch is the most dangerous element.

Practically then the more completely we are able to eliminate the hydrocarbons from the food supply in glycosuria, the more completely will we be able to bring and to hold the disease under control. Certain allowances must be made for individual idiosyncrasies, as well as for a few exceptional articles of diet, which experience has shown us are sometimes well borne—even when their classification would seem to contraindicate their use. To speak more accurately then, the more completely we are able to supply the system with that which it can appropriate as nourishment, and at the same time the more completely we can eliminate that which is convertible into sugar the more successful will be the treatment. Now, in view of the above facts, which I have endeavored to present as carefully separated from theoretical speculations as possible, it seems indeed strange that more earnest efforts are not made in the management of glycosuria—especially in the more pronounced types of the disease—to supply more nearly that diet upon which almost alone depends the improvement or cure of these cases. I shall first point out what seem to me the more prominent errors commonly made in dieting in the severe type of the disease, giving a list of the admissible foods; after which I shall note some of the liberties of diet that may be indulged in the milder reflex forms; and lastly, I shall refer to the influence of drugs over the disease.

First in importance comes the question of bread, some form of which containing starch is permitted in all the diet lists I have seen. Now I do not hesitate to state, without fear of successful contradiction, that all the so-called diabetic flours, breads, and cakes in the market of which I have any knowledge, are loaded with hydrocarbons. They are "a snare and a delusion," and have unquestionably shortened the lives of thousands. Most samples of gluten flour, from which the starch is claimed to have been eliminated—or nearly so—contain from 20 to 40 per cent. of starch. I saw in Dr. Pavy's laboratory in London a few months since an analysis of one of the so-called diabetic flours on sale in our markets, which showed the starch contents to be nearly 60 per cent. Long before I became aware of these facts I found that I could not control typical cases of diabetes if I permitted the use of commercial flours so-called "diabetic." I need scarcely add that with the above figures before me I have discarded them altogether.

The withdrawal of bread from the diet usually constitutes the most serious deprivation the diabetic patient has to encounter, although the appetite for bread is more largely a matter of taste and habit than of necessity. Some patients become quite reconciled to the change after a few weeks and do not mind it, but usually the craving for bread of some kind remains more or less strong, and will not be supplanted by the use of other foods. In the latter class of cases, if strict dieting be demanded, I permit the moderate use of bread made from almond flour as first practiced, I believe, by Dr. Pavy. The almond is absolutely free from starch, but contains about 6 per cent. of sugar. The latter may be eliminated by boiling the meal in acidulated water for an hour or so and then straining it. The almond meal is not on sale in the markets; the large percentage of its contained oil (50 per cent.) renders it unfit for keeping sufficiently long for commercial purposes. In my own practice I direct the meal to be made as required by means of mills especially constructed for the purpose. Almond flour, when beaten up with eggs, may be raised with the aid of a little baking powder, and baked in small tins in an oven, and the resulting bread is relished by most of my patients as equally palatable with ordinary bread. It should be borne in mind that almond bread, as indeed all substitutes for common bread, should be used in moderation; otherwise patients deprived of other luxuries of food fly to the permitted bread with an avidity seemingly born of the thought that it is indeed the "staff of life" instead of merely a substitute therefor. To make a substituted article of diet go further than the original one is more than is to be expected, even in these practical days, and yet I am led to believe that the failure in accomplishing this in the case of almond bread has led to its unjust condemnation by some in these cases.

The next question of importance in diet—and one upon which authorities greatly differ, is the propriety of the use of milk in diabetes. Dr. Donkin, perhaps the most enthusiastic advocate in its favor, published a book in 1871, which was devoted to the exclusive use of milk as a means of treating this disease. In England Dr. Donkin's so-called "milk cure" has met with few if any weighty supporters; on the contrary, many advocate the total exclusion of milk from the diet. My own experience in the use of milk in

the treatment of diabetes began nine years ago since which time I have made thorough and varied trials of it, both as an exclusive and as an adjunct diet. My conclusions are that milk is successful chiefly—perhaps only—in milder forms of the disease, such as I have termed reflex cases. Such cases are, as a rule, controllable by moderate limitations of diet, which offer greater range and nutritive power than does milk. In the more severe type of the disease I have repeatedly found when the diet was rigidly restricted, save in the use of milk, that the total exclusion of the latter without other change caused a prompt reduction, and often the disappearance of sugar from the urine.

Milk contains a very considerable amount of sugar (lactine), about half an ounce to each pint, and Dr. Pavy observes that this animal hydrocarbon "comports itself in the intestinal canal precisely as does grape-sugar." There can be little doubt, therefore, that in the more pronounced type of diabetes requiring a strict diet, milk should be excluded from the list.

There is a form of glycosuria that occurs in obese and over-nourished subjects, in which the amount of sugar in the urine is usually small, and probably largely due to the ingestion of more hydrocarbons than the system is able to appropriate. Such cases are benefited, and indeed often cured, by a course of fasting. The "milk cure" consisting of the exclusive use of skimmed milk is likely to benefit such cases because it is, in fact, a system of starving.

Skimmed milk alone is not sufficient to long maintain proper nourishment to the organism. In pronounced diabetes of central origin, where the assimilative powers of the system are weakened, and more or less emaciation has already set in, it would, therefore, seem absolute folly to confine the patient to skimmed milk, for under such circumstances death from inanition must be but a question of a short time. Sir Wm. Roberts records three cases which he subjected to the "milk cure" with the result that they all succumbed in a short time My own experience is similar to Dr. Roberts', save that I ceased to use it as an exclusive diet after seeing my first patient rapidly sink under its employment. It is important to bear in mind that lactine is confined to the whey, and consequently the other derivatives of milk—as cheese, cream, curds and butter—are unobjectionable.

Another food of animal source contraindicated in diabetes is liver. The liver of animals contains considerable sugar, as might be expected, considering the glycogenic function of that organ. Not only should the liver of quadrupeds be avoided, but certain fish, especially oysters and the interior of crabs and lobsters, since they possess proportionately very large livers. It has been claimed that this precaution is more in keeping with theory than practice, but a sufficient answer is furnished in the fact that analyses of oysters have shown as high a range as 10 per cent. of sugar.

The very wide distribution of starch and sugar throughout the vegetable kingdom renders our selection of food from this source limited indeed. In strict dieting we are obliged to avoid nearly the whole list of table vegetables. One class only are we at all safe in drawing upon—greens—and these with caution. Green vegetables fortunately consist mostly of cellulose and contain little, sometimes no starch or sugar. They are rendered still safer if boiled before being eaten; the hot water further ensuring the absence of starch and sugar.

The starch and sugar composition of vegetables varies somewhat. This variation depends much upon the degree of cultivation, and the nature of the climate and soil in which they are produced. As a rule, a high degree of domestic cultivation favors an increase of starch and sugar, while high temperature and sunny skies have an opposite tendency. Among the least objectionable vegetables may be mentioned spinach, lettuce, olives, cucumbers, mushrooms, Brussels sprouts, turnip tops, water-cresses, cabbage, cauliflower, and the green ends of asparagus. Nearly all nuts are unobjectionable, chestnuts forming an exception.

In the matter of beverages the diabetic patient will scarcely encounter very serious restrictions, since the range permitted includes most of those in domestic use, including many which fall within the line of luxuries. Among these may be mentioned tea, coffee, all mineral waters, pure spirits, as brandy, whisky, gin, and such wines as claret, Rhine wine and Burgundy.

Having briefly reviewed the food products applicable in glycosuria, I shall now enumerate the list I employ in dieting patients upon strict principles, as appropriate in the more severe type of true diabetes of central origin.

STRICT DIABETIC DIET.

Meats of all kinds except livers; beef roasted, broiled, dried, smoked, cured, potted, or preserved in any way except with honey, sugar, or prohibited vegetables. Mutton, ham, tongue, bacon, sausages. Poultry and game of all kinds. Soups made from meats, without flour or prohibited vegetables. Eggs, butter, cheese, pure cream, curds, oil, gelatine and unsweetened jellies. Fish of all kinds except oysters and the inner parts of crabs and lobsters. Bread, biscuits, and cakes made from almond flour. Spinach, lettuce, olives, cucumbers, mushrooms, water-cresses, green cabbage. Almonds, walnuts, Brazil nuts, filberts, butternuts, cocoanuts. Salt, vinegar and pepper.

Drinks, tea and coffee, mineral waters, whisky, gin and brandy, in moderation. Claret and Rhine wine.

In mild forms of glycosuria some additions may be safely made to the above diet, and often with advantage. Since in such cases the sugar-forming

powers of the organism are weaker; or, in other words, the assimilative powers for sugar and starch are greater, it is only necessary to limit, *not to curtail* the hydrocarbons. It seems necessary, therefore, to have at hand to draw upon a supplementary list of foods, which contain but limited amounts of these agents. The selection from the supplementary list should always be made with care; indeed, it should be almost as much a matter of experiment as rule, since we encounter wide differences in individual cases. Thus levulose—fruit sugar—is often well assimilated in the milder form of the disease, and this permits the inclusion of certain fruits in the supplementary list.

SUPPLEMENTARY DIET.

Cabbage, celery, radishes, cauliflower, green string beans, coldslaw, kraut, young onions, tomatoes, cranberries, apples if not sweet, milk in moderate quantities, and bran bread or gluten bread well toasted.

The discovery of saccharin has furnished us an admirable substitute for sugar, since this agent possesses a sweetening power nearly 300 times greater than that of sugar, and a flavor quite as agreeable and pleasant. The tablet form in which saccharin is now put up is very convenient for sweetening coffee, tea, and other beverages. Constant use of saccharin in practice for over a year has convinced me that it is entirely harmless in these cases.

The method of dieting diabetic patients is of scarcely less importance than the quality of the diet itself. In order to more accurately determine the effects of diet upon the disease, no so-called specific medicines should be administered until the sugar excretion is reduced as far as is possible by diet alone. Step by step the more objectionable foods should be cut off until sugar ceases to appear in the urine, or until we reach almost—indeed in some cases an absolute—animal diet. Of course, where patients have been enjoying all the luxuries of a diet range comprising our modern resources of food-supply and culinary arts, an abrupt change to a strict diabetic diet would carry with it more or less danger, and therefore such course is never advisable. *The first step* should consist in the exclusion of potatoes, sugar, and farinaceous foods, except leaving the patient the liberty of using *a moderate amount* of bread thinly cut and well toasted on both sides. With these restrictions the patient should continue without other changes for about two weeks. In the milder cases this "first step" in dieting will have caused a reduction of the sugar in the urine to relatively small proportions; indeed, in some cases it completely vanishes. If sugar still appears in the urine—especially if in considerable quantities—under the above restrictions, we may know that the disease is at least of moderately severe type, and we should proceed to the next step in the diet. This should consist in the exclusion of milk, and all vegetables save green ones. Greater care should be exercised in the use of bread; white bread should be forbidden, and some substitute employed that contains less starch. Gluten or bran bread may be tried, but always toasted, as this alters its contained starch, so that it is not so readily converted into sugar.

After two weeks' adherence to the above restrictions, if sugar still appears in the urine beyond mere traces, we may be sure that we have to deal with the disease in its more severe type, and we must accordingly bring to bear against it all our resources of diet in the most strict form. Everything containing starch or sugar that can be avoided, should be strictly forbidden. This last step should be entered upon rather more gradually than the others. Milk, if previously permitted, should now be replaced by pure cream. Cabbage, celery, radishes and string beans should be exchanged for spinach, lettuce, water-cresses, olives and cucumbers. Lastly, apples, tomatoes and all fruits should be avoided, and, with the exception of almond bread, some nuts and a few greens, the patient is reduced to an animal diet. Upon these restrictions, properly carried out, we shall find a large proportion of diabetic patients cease to excrete sugar with their urine, and with this result nearly all the symptoms of the disease will disappear.

In exceptional cases, even after a fair trial of the above restrictions sugar still appears in the urine, but it rarely exceeds 1 per cent. Under such circumstances the patient should be placed upon an absolutely animal diet, at least for a time. It will be found that a strictly animal diet will often remove these last traces of sugar from the urine, and after its continuance for a longer or shorter time, a reversion to some of the less objectionable articles of the vegetable order causes no reappearance of sugar in the urine.

In accustoming the patient to the more strict form of diet, care should be exercised not to permit the stomach to be overloaded. The beneficial effects of temperate eating in glycosuria were very prominently illustrated during the siege of Paris, as Bouchard observed that sugar entirely disappeared from the urine of diabetics in whom up to that time it had persisted, even though they had been living on a carefully regulated diet. The diminution in the quantity of food, occasioned by its great scarcity during the siege, effected that which alteration in quality had failed to accomplish.

The more slowly food is submitted to the digestive forces, the more completely is it likely to become assimilated. Light meals frequently repeated is the better rule to follow, at least until the patient becomes accustomed to the change. It is important also that the diet be varied as greatly from day to day as the range of food in the list will permit.

I have repeatedly placed diabetic patients that were considerably under 20 years of age upon the strict lines of diet herein indicated, with the result of completely eliminating the sugar from the urine for weeks and months together, and without resort to medication. Thus it may be seen how much may be expected from proper dieting, even in cases that we are forced to consider as ultimately hopeless ones.

By way of illustration—a year ago this month a lad of 18 years came to me from a distant State with a history of diabetes of over a year's standing. His symptoms, as is usual in such cases, were great thirst, morbid appetite, polyuria, and advancing emaciation, with a very considerable amount of sugar in his urine. His physician at home had put him upon a diet scarcely so limited as the "first step" laid down in this paper, and but a slight check was put upon the disease. I gradually restricted his food allowance until it conformed to the strict diabetic diet already laid down. His thirst gradually subsided, the quantity of urine diminished, and at the end of six weeks no trace of sugar was to be found in his urine, and he began to regain his lost weight. Under a continuance of this course the urine remained normal in quantity and free from sugar for about three months, when he returned to his home with directions to follow as closely as possible the course that had so greatly benefited him. This case may be fairly ranked among the most unpromising ones, chiefly on account of the patient's age; for it is a rare exception to meet with a case under 20 years of age in which the disease does not rapidly prove fatal unless the patient be very strictly dieted.

It may be said of glycosuria in general that its severity is usually in inverse ratio to the age of the patient. The youngest diabetic I have seen came under my care a short time since, in the person of a little boy 3 years and 2 months old. In this case the polyuria was so pronounced that a nurse had to be provided to attend him at night, as he "wet the bed" from six to eight or more times each night. It may be of interest to note that he was put upon an animal diet, including milk, which soon lessened his polyuria so that the patient did not urinate during the whole night. I believe milk is more easily assimilated by children than by adults; at any rate it seems to agree better with them in these cases; and this is very fortunate, since we are almost driven to its use in diabetics of tender age. As a rule, in patients under middle age, we shall be obliged to bring to bear against glycosuria all our resources of dieting in the more strict form. I have met with an exception to this rule in the case of a Jewess, 29 years of age, in whom moderate restrictions of diet have kept the urine practically free from sugar for the past year and a half, only exceptional traces having appeared occasionally. It has been remarked by several observers that diabetes is frequent among Hebrews, and that in them the disease is always of mild form. My own experience tends to confirm the latter statement. I have, indeed, at the present time, three cases in Hebrew women under treatment, and they are all of mild form.

For the most part the milder forms of glycosuria are met with in people that have passed the age of 40 or 50 years. In this class of cases our resources against the disease are always more effective; indeed, one or two years careful dieting not infrequently leads to permanent cure.

It remains, to speak of the medicinal treatment of glycosuria, and I may as well state frankly at the beginning that I have little faith in the curative power of medication over the disease, while on the contrary I am satisfied that the use of drugs in these cases is often productive of harm. My conclusions upon this point have been reached through separating the dietetic from the medicinal treatment, and then comparing the results of each. When a system of diet and medication are employed together from the beginning, the benefits accruing from diet may be attributed to the medicines, while the unfavorable influence of medication may be attributed to the disease. Our faith has become so supreme in the efficiency of medication in these days, that we are apt both to permit ourselves to be misled in its favor, and to overlook its possible injurious effects.

Of the various drugs that have been recommended in glycosuria, opium, perhaps, maintains its reputation best and has become the most popular. Opium undoubtedly tends to restrain the excretion of sugar in these cases, but the doses necessary to accomplish this result are so large that the drug is likely to induce constipation and impaired digestion, and thus any good accomplished through its use is more than counterbalanced by resulting evil. I have recently gone over this ground very carefully in a series of trials systematically conducted. Three cases were selected, in each of which the sugar excretion had been reduced by strict diet to about 1 per cent. They were all typical cases of true diabetes of central origin; and no little pains had been expended in reducing the sugar to so small a percentage, and maintaining a good general condition with excellent digestion and assimilation. Under gradually increasing doses of opium the sugar excretion was reduced somewhat in all the cases, but sooner or later constipation, loss of appetite, or nervous disturbances compelled the discontinuence of the drug without exception. This has always been my experience in the use of opium in glycosuria; nor have I found any material advantage in the use of morphia, its bimeconate, or the use of codeine. They all comport themselves much the same as does opium when used in equal physiological doses.

Ergot is probably the next most popular drug employed in the treatment of glycosuria. In the necessarily large doses required to effect the disease it is unsuitable for lengthy periods of administration. Its controlling power over glycosuria is very feeble and uncertain, and on the whole it may be regarded as unworthy of much confidence.

Bromide of arsenic and syzygium jambolanum have recently been highly lauded in the treatment of glycosuria. I have known the former to be administered in the largest doses (25 drops Gilliford's solution), during which time the patient continued to excrete urine that contained 30 grains of sugar to the ounce. Upon withdrawing the bromide of arsenic and placing the patient upon a restricted diet, I had the satisfaction of seeing the sugar speedily reduced to 2½ grains to the ounce. I have administered jambul to a number of my patients, but without noticing any favorable change that I could fairly ascribe to its use. A number of other drugs have been more or less highly extolled for their alleged specific influence over glycosuria. Among these may be mentioned iodoform, bromide of potassium, iodide of potassium, arsenic, sodium phosphate, nitrate of uranium, salicylic acid, picric acid and Calabar bean. There does not, however, appear to be sufficient evidence in favor of any one of these to entitle it to any degree of confidence. Carefully discriminated from the benefits derivable from dieting, these drugs are probably nearly inert so far as their influence over glycosuria is concerned.

The legitimate field of therapeutics in glycosuria becomes practically narrowed down to the treatment of its accompanying symptoms, and upon this point but few words will be here added. It has already been stated that disordered digestion is so frequent in glycosuria as to constitute it an accompanying rule. Indeed, many of the milder cases owe their origin without doubt to this cause. The digestive and assimilative functions should therefore receive especial support through such agents as experience has taught us prove the most efficient. Among these may be mentioned, pepsin and the vegetable bitters—and especially strychnia. The latter I have come to regard with increasing favor.

Constipation, so frequent an accompaniment of glycosuria, should be especially guarded against, as this condition reacts very markedly in enfeebling the digestive and assimilative powers. I have an especial preference for the natural alkaline purgative waters to meet such requirements, since they relieve the over-acid condition of the intestinal canal so common to the disease. Friedrichshall or Sprudel—or the salt made by the evaporation of the latter—given before breakfast, in hot water, seem especially appropriate. In middle-aged people inclined to stoutness and overeating, a course of purgation by either of these agents often proves highly beneficial.

The various nervous disturbances accompanying glycosuria are, on the whole, perhaps best met by the use of bromides—especially that of sodium or lithium. It is not uncommon to meet cases of glycosuria complicated by anæmia. When pronounced, this condition is frequently attended by œdema of the extremities, and under such circumstances the liberal use of iron and arsenic is attended by excellent results. The appearance of multiple boils is not uncommon in glycosuric patients; a complication generally considered ominous of approaching danger. I have seen a disappearance of this complication in two weeks under the use of quinine—8 to 10 grs. daily—after having resisted other measures for nearly three months.

The most dangerous, and certainly the most rapidly fatal, of all the complications of glycosuria is that of Kussmaul's coma—sometimes called acetonæmia. Since the treatment of this complication has thus far proved so unsatisfactory, a knowledge of the conditions commonly leading thereto should be borne in mind, in order to guard the patient against it. Constipation, mental emotion, and fatigue seem especially to predispose to this complication, while a highly acid state of the urine often precedes it. I have repeatedly, in these cases, observed sudden death by coma to constitute the penalty of a hunting expedition, or long railway journey entailing unusual fatigue. If the early indications of approaching coma are observed, stimulants and hot baths should be resorted to without delay. It is believed that diabetic coma is brought about by some toxic agent in the blood, perhaps derived from alcoholic fermentation of glucose. Whether this be acetone, or some other agent, we are warranted by certain facts in believing that it is of an acid nature and, therefore, large doses of alkalies seem the most appropriate remedies to employ. An ounce of tartrate or citrate of soda dissolved in a pint of water may be given three or four times a day. The intravenous injection of sodium carbonate, with chloride of sodium, is strongly advised if coma has already become established. Under the latter circumstances, however, recovery is extremely rare under any form of treatment. On the whole, then, promising results are only to be expected by attempts at warding off the attack through such measures as have already been suggested.

In concluding what has been intended as a practical review of the management of glycosuria, it seems desirable to emphasize the immense importance of careful dieting as greatly outweighing all our other resources combined. This fact should be strongly impressed upon the patient from the beginning. He should be taught to rely little upon medication, and the most effective means of doing this is to show him how much can be accomplished by careful dieting alone. When he

has once learned through experience that the amount of sugar in his urine always bears a direct ratio to the prohibited foods indulged in, he is less likely to overstep the proper limits imposed. With his thirst, polyuria, and other discomforts relieved—a sure sequence of careful conformance to the rules—unless he be greatly lacking in intelligence and gratitude, he will cheerfully submit to the conditions imposed, since he will see and feel how greatly he is indebted to them.

163 State St., Chicago.

AN INTRODUCTION TO THE STUDY OF PNEUMONIC FEVER.

BY EDWARD F. WELLS, M.D.

FOURTH PAPER.—PREVALENCE.

Pneumonic fever "is one of the severest, most common, and in cold and temperate climates, is productive of more deaths than any other acute disease,"[1] and "is, next to phthisis, the greatest enemy of mankind."

The prevalence of a disease may be studied in various ways, *e. g.*, by considering; *α.* the annual mortality in relation (1) to the population, (2) to the deaths from all causes and (3) to the deaths from certain specified causes, and *β.* by comparing the annual mortality to (1) the population, (2) to that from all causes and (3) to that from specified causes.

Pneumonic fever is responsible for an annual mortality of 1.27 per 1000 of population. This estimate differs somewhat from those arrived at by Sanders,[3] 1.38; Hirsch,[4] 1.49; Ziemssen,[5] 1.53, and Osterlen,[6] 1.85. Inasmuch, however, as the magnitude of the figures with which I deal is much greater than that of either of these statisticians and are derived from a wider field, I am persuaded that my results approach nearest the truth. It is also the cause of 7.1 per cent. of all deaths. Sanders' estimate is 5.9 per cent., Juergensen's[8] 6.6 per cent., and Paton's[9] 17 per cent!

The following table shows the material from which my estimate has been derived. The magnitude of the numbers employed, the wide distribution of the points of observation, and the number of years embraced in the calculation will go far towards eliminating those errors incidental to all statistical inquiries.

[1] Laennec, Traité de l'Ausculatation Mediate. Paris, 1819.
[2] Juergensen, Ziemssen's Handb. d. Spec. Path. u. Therap., Leipzig, 1877, Bd. v. S. 12.
[3] Am. Jour. Med. Sci., July, 1882, p. 83.
[4] Handb. d. Geog. u. Hist. Path., Erlangen, 1864, Bd. ii, S. 21.
[5] Präger Vierteljahrschr., 1858, S. 11.
[6] Handb. d. Med. Statistik, Tübingen, 1874, S. 377 u. 566.
[7] Op. cit., p. 83.
[8] Ziemssen's Handb., Bd. v., S. 12.
[9] Am. Jour. Med. Sci., Oct., 1870, p. 375.

TABLE III.—SHOWING PREVALENCE OF PNEUMONIC FEVER.

LOCALITY.	Years.	Population.	Deaths. All Causes.	Pneumonic Fever.	Per cent.	Per 1,000.
Alabama[10]	1	1,262,505	17,919	1,748	9.7	1.38
Africa[11]					9.1	3.62
Algiers[12]	6					2.10
America[13]						1.20
Antilles[14]	20					1.30
Arizona[15]	1	40,440	291	30	10.3	.75
Arkansas[16]	1	802,525	14,812	1,952	13.2	2.43
Asia[17]						1.43
Atlantic Steamers[18]	4		412	47	11.0	
Australia[19]						.72
Austro-Hungary[20]						2.42
Baltimore[21]	29	417,000	15,722	1,028	6.5	1.13
Bavaria[22]	5					2.20
Belfast[23]	9					.44
Belgium[24]						.85
Belleville, Ont.[25]	3	9,742	537	20	3.7	.63
Bengal[26]	14					1.40
Berlin[27]	52					1.21
Bermuda[28]	10					.60
Bombay[29]	3					.40
Boston [30]	42		7,905	321	5.3	1.23
Brantford, Ont.[31]	3	11,833	484	44	9.0	1.27
Breslau[32]	2					1.20
British Army[33]	10					.86
Brooklyn[34]	1	500,000	11,011	858	8.0	1.71
California[35]	1	864,694	6,396	641	10.0	.74
Canada[36]	20					1.32
Cape Colony[37]	19					.70
Cape Town[38]	1					1.00
Central America[39]						1.82
Ceylon[40]	20					.70
Charleston[41]	5	49,984	1,768	65	3.6	1.30
Chicago[42]	2	400,000	15,924	870	5.5	1.09
Christiana*	1	75,000		116		1.54
Cincinnati[43]	20	230,000	104,752	7,093	6.7	1.54
Cleveland[44]	2	160,000	7,366	421	5.7	1.41
Colorado[45]	1	194,237	2,078	373	18.0	1.92
Connecticut[46]	10	622,700	106,883	7,177	6.6	1.15
Copenhagen[47]	32					1.71
Cork[48]	9					.46
Cuba[49]						1.40
Dakota[50]	1	135,177	1,304	110	8.4	.81
Delaware[51]	1	104,130	1,302	87	6.6	.83
Denmark[52]						1.57
Denver[53]	1	35,629	469	67	14.3	1.85
Dist. of Columbia[54]	3	177,624	11,476	1,091	9.0	2.05
Dresden[55]	10					.40
Dublin[56]	9					.81
Edinburgh[57]	3					1.42
England[58]	11					1.25
Europe[59]						1.57
Florida[60]	1	269,493	3,159	209	6.6	.74
Faroe Islands[61]						.71
France[62]						1.90
French Army[63]	18				3.9	
Georgia[64]	1	1,542,180	21,548	1,685	7.8	1.09
German Army[65]	9				12.3	.47
Germany[66]						1.34
Germersheim Garrison[67]	26		314	24	7.6	.40
Guelph[68]	5	10,190	484	21	4.3	.63
Geneva[69]	5					1.30
Ghent[70]	4					.21
Gibraltar[71]	10					.70
Halle[72]	10					.29
Hamburgh[73]	19	180,000	9,661	321	3.3	1.80
Hamilton[74]	3	39,216	2,228	122	5.4	1.13
Hartford[75]	6	45,000	6,019	449	7.5	1.66
Iceland[76]						.79
Idaho[77]	1	32,610	323	35	10.8	1.09
Illinois[78]	2	2,572,000	58,478	5,618	9.6	1.48
Indiana[79]	4		74,031	6,692	9.0	1.60
Ionian Islands[80]	10					.60
Iowa[81]	1	1,624,000	19,377	1,615	8.1	1.00
Ireland[82]	9					.27
Italy[83]						1.85
Jamaica[84]	20					.30
Kansas[85]	1	996,000	15,160	1,447	9.0	1.60
Kentucky[86]	1	1,648,932	20,930	1,671	8.0	1.09
Kingston[87]	3	15,297	924	40	4.3	.87
Knoxville[88]	1	9,000	168	16	9.0	1.55
Leith[89]	3					1.50
Limerick[90]	9					.60
London[91]	17				.9	1.69
London, Ont.[92]	3	20,970	998	70	6.2	.90
Louisiana[93]	1	723,856	8,908	1,132	12.7	1.56
Madras[94]	10					.70
Maine[95]	1	648,936	9,523	798	8.3	1.08
Malta[96]	13					.80
Maremmen[97]	7					5.80
Maryland[98]	1	602,630	8,751	681	08.0	1.13
Massachusetts[99]	24	1,123,425	122,402	8,106	6.6	1.35
Memphis[100]	1					2.50

TABLE III—CONCLUDED.

LOCALITY.	Years.	Population.	Deaths. All Causes.	Pneumonic Fever.	Per cent.	Per 1,000.
Michigan[101]	2	1,520,597	28,122	1,642	5.8	.80
Milwaukee[102]	2	120,000	4,045	210	5.5	.90
Minnesota[103]	1	692,413	8,114	405	5.0	.58
Mississippi[104]	1	1,131,116	14,583	1,783	12.2	1.57
Missouri[105]	1	1,762,077	28,953	3,850	13.3	2.18
Montana[106]	1	39,159	336	32	9.5	.82
Montreal[107]	1	183,000	4,665	187	4.0	1.02
Nebraska[108]	1	452,404	5,930	417	7.0	.92
Netherlands[109]						1.90
Nevada[110]	1	62,666	728	147	20.2	2.36
New Archangel[111]	5					2.30
New Brunswick[112]	10					1.10
Newfoundland[113]	10					.30
New Hampshire[114]	2	346,991	11,784	917	7.7	1.32
New Haven[115]	10		1,228	75	6.0	1.20
New Jersey[116]	3	812,855	38,796	1,859	4.8	1.10
New Mexico[117]	1	119,565	2,436	160	6.5	1.34
New Orleans[118]	3	200,000	21,520	954	4.4	1.59
New York[119]	20	5,062,122	245,556	17,698	7.2	1.03
New York City[120]	36	1,206,299				2.03
Norway[121]	1	1,756,965	29,417	872	2.9	.50
Norway and Sweden[122]						1.60
North America[123]						1.21
North Carolina[124]	1	1,399,750	21,547	1,280	5.9	.91
Nova Scotia[125]	10				6.1	1.10
Ohio[126]	1	2,742,315	32,277	2,074	6.4	.75
Ontario[127]	14	1,800,000	245,759	13,198	5.3	.51
Oregon[128]	1	174,768	1,864	89	4.8	.51
Ottawa[129]	3	30,791	3,185	113	3.5	1.20
Paris[130]	26					2.56
Pennsylvania[131]	1	3,111,522	41,294	3,021	7.3	.97
Petersburg[132]	1	21,000	506	36	7.0	1.75
Philadelphia[133]	48	750,000	64,579	4,086	6.3	1.30
Pittsburgh[134]	7	170,000	30,086	2,311	7.6	1.65
Providence[135]	23	100,000	14,542	2,017	7.2	1.50
Rhode Island[136]	16	276,531	59,258	3,773	6.4	.90
Richmond[137]	3	60,000	4,752	229	5.1	1.29
Rochester[138]	2	80,000	3,037	145	5.5	.90
Russia[139]						1.05
San Antonio[140]		45,000	775	15	1.9	.33
Sandwich Islands[141]					2.0	.61
San Francisco[142]	1	200,000	4,436	326	8.0	1.63
Savannah[143]	16		9,512	470	5.2	1.70
Selma[144]	1	6,000	100	12	12.0	2.00
Scotland[145]						.73
Sierra Leone[146]	18					.50
South America[147]						1.61
South Carolina[148]	1	945,593	13,870	1,059	7.6	1.12
St. Catharines[149]	3	9,931	501	35	7.0	1.13
St. Helena[150]	6					.80
St. Louis[151]	3	400,000	23,645	1,508	6.3	3.77
St. Paul[152]	1	125,000	1,519	97	6.3	.77
St. Thomas[153]	3	10,811	297	23	7.8	.97
Switzerland[154]						1.50
Tennessee[155]	1	1,499,009	24,529	2,118	8.6	1.41
Texas[156]	1	1,591,749	25,030	2,514	10.4	1.59
Toronto[157]	3	105,211	6,598	434	6.6	1.39
Turin[158]	10					2.20
United States[159]	1	50,155,783	756,893	63,625	8.4	1.26
U. S. Army[160]	2		71,192	7,091	10.0	
U. S. Marine[161]	6		2,818	256	9.1	
Utah[162]	1	143,963	2,414	295	12.2	2.06
Vermont[163]	1	332,286	5,024	496	9.8	1.49
Virginia[164]	1	1,448,965	23,507	1,807	7.7	1.24
Washington[165]	1	75,116	755	59	7.9	.71
West Virginia[166]	1	618,457	7,418	432	5.8	.70
Wisconsin[167]	1	1,199,910	13,652	939	6.9	.78
Würzburg[168]	4					1.50
Wyoming[169]	1	20,789	189	18	9.5	.90
Zürich[170]	23		29,147	2,581	8.8	2.05
Total and averages			2,745,985	196,568	7.1	1.27

[10] U. S. Census Reports, 1880.
[11] Chamberlain, N. E. Med. Mon., June, 1883, p. 406; Sanders, Am. Jour. Med. Sci., July, 1882.
[12] Laveran, Mal. des Armeés, Paris, 1875.
[13] Sanders, op. cit.
[14] Tulloch, Brit. Army Rpts., 1838. For Negroes it is 3.90.
[15] U. S. Census Reports, 1880.
[16] Ibid. [17] Sanders, op. cit.
[18] U. S. Marine Hospt. Serv. Reports.
[19] Sanders, op. cit.
[20] Sanders, op. cit. According to U. S. Census Rpts., 1880, 2.96%.
[21] Niles and Russ, Med. Statist., etc., N. Y., 1827, 1819–26; Joynes, Am. Jour. Med. Sci., Oct., 1850, p. 297, 1836-1850; Frick, Am. Jour. Med. Sci., Oct., 1855, p. 312, 1850-55; Rpt. Bd. Health, 1878-1886.
[22] Klinger, Lungenk. in Bayern, 1874. Sanders gives it 1.40.
[23] Ziemssen, Prager Vierteljahrschr., 1868.
[24] Sanders, op. cit. In two of the largest cities the rate was 1.74.
[25] Ontario Reg. Rpt. 1883-4-5.
[26] Gordon, Med. Times and Gaz., Aug. 1856, p. 188.
[27] Hirsch, Handb. d. Hist.-Geog. Path., Erlangen, 1864, Bd. ii, S. 21; Pulvermacher, Inaug. Diss., Berlin, 1882.
[28] Tulloch, Army Reports, 1853.
[29] Kinnis, Edinb. Med. and Surg. Jour., Vol. lxxvi, p. 256.
[30] Shattuck, Am. Jour. Med. Sci., April, 1841, p. 369; Ziemssen, l. c.
[31] Ontario Reg. Rpt., 1883-84-85.
[32] Ziemssen, op. cit.
[33] Tulloch, Army Reports. At Sea Island Stations, .50 per 1,000.
[34] Board of Health Report, 1878.
[35] U. S. Census Reports, 1880.
[36] Tulloch, Army Reports, 1853; Ziemssen, op. cit.
[37] Tulloch, Army Reports, 1840. Hotttentotts gave a rate of 1.29.
[38] Tulloch, Army Reports, 1853.
[39] Sanders, op. cit.
[40] Tulloch, op. cit, 1841. Malays, 1.10, blacks, 3.20
[41] Rept. City Board of Health; U. S. Census Report, 1880.
[42] Report Board of Health, 1878.
[43] Walton, U. S. Naval Reports, 1881, p. 67.
[44] Report Board of Health, 1886.
[45] Report Board of Health, 1878-1887.
[46] U. S. Census, 1880.
[47] Board of Health Report, 1885.
[48] Ziemssen, l, c.; Berichten d. Dänischien Gesundheitsampt
[49] Ziemssen, op. cit. [50] Sanders, op cit.
[51] U. S. Census Reports, 1880.
[52] U. S. Census Reports, 1880. Exclusive of Wilmington.
[53] Sanders, op. cit.
[54] U. S. Census Reports, 1880.
[55] Board of Health Reports.
[56] Meyér, Med. Topog. Dresden, 1840.
[57] Ziemssen, op. cit.
[58] Stark, Edinb. Med. and Surg. Jour., Vol. lxvii, p. 624; lxix, p. 512; lxxi, p. 380.
[59] Ziemssen, op. cit.; Sanders, op. cit. In 13 cities the rate was 1.22, and in England and Wales, combined, 1.03. See Eighteenth An. Rpt. Reg. Gen., London, 1857.
[60] Sanders, op. cit. In 68 principal cities the rate was 1.60.
[61] U. S. Census Report, 1880. Sanders, l. c., gives it 1.39.
[62] Sanders, op. cit. [63] Sanders, op. cit.
[64] Laveran, Ann. d'Hyg., 1860. In the Army in Algiers the rate was—715 deaths, 46 pneumonic fever—6.4. See Laveran, Mal. des Armees, p. 28.
[65] U. S. Census Reports, 1840. The State system of registration is so faulty that it cannot be used.
[66] Hermann, Lungenentzündung, 1880.
[67] Sanders, op. cit. In 19 large cities the rate was 1.54.
[68] Hermann, op cit.
[69] Ontario Reg. Reports, 1883-84-85.
[70] D'Espine, Ann. de la Mortal. Genev.
[71] Ziemssen, op. cit.
[72] Tulloch Army Reports, 1853.
[73] Baerensprung, Epidem. Krankh. in Halle, 1854; Abh. d. Naturf. Gesellsch. in Halle, Bd. i.
[74] Ziemssen, op. cit. Handb. Zeitschr. f. Med., Bde. 18, 21, 24, 27, 30, 33, 36, 39 u. 40; Walton, U. S. Naval Repts., 1879, for percentage.
[75] Ontario Reg. Reports, 1883-84-85.
[76] Board of Health Report, 1887.
[77] Sanders, op. cit.
[78] U. S. Census Reports, 1880.
[79] State Board of Health Report, 1885; U. S. Census, Rpts., 1880. Exclusive of Chicago.
[80] U. S. Census Reports. 1880, and Reports State Bd. of Health, 1884-86. The latter are so unreliable that they can not be employed in calculating the rate per 1,000 of population.
[81] Tulloch, British Army Reports, 1853.
[82] U. S. Census Reports, 1880.
[83] Ziemssen, op. cit.; Sanders, op. cit., gives the rate as .31, and in four of the largest cities .54.
[84] Sanders, op. cit. In four large cities the rate was 2.95.
[85] Tulloch, Army Reports, 1838.
[86] U. S. Census Reports, 1880; Sanders, op. cit., gives it 1.49.
[87] U. S. Census Reports, 1880. Exclusive of Louisville.
[88] Ontario Reg. Reports, 1883-84-85.
[89] Report Board of Health, 1878.
[90] Stark, Edinb. Med. and Surg. Jour., Vol. lxvii, p. 624, Vol. lxix, p. 512, Vol. lxxi, p. 480.
[91] Ziemssen, op. cit.
[92] Ziemssen, op. cit.
[93] Ontario Reg. Reports, 1883-84-85.
[94] U. S. Census Reports, 1880. Exclusive of New Orleans.
[95] Balfour, Edinb. Med. and Surg. Jour., Vol. lxviii, p. 33.
[96] U. S. Census Reports, 1880. Sanders gives it .62 per 1,000.
[97] Tulloch, Army Report, 1839. In civil life it was .30 per 1,000. See Tulloch's Report for 1853.
[98] Salvagnoli Marchetti, Ann. Univ., 1846.
[99] U. S. Census Reports, 1880. Excepting Baltimore.
[100] Population excepts 7 largest cities, see U. S. Census Reports, 1880. Other facts, Reg. Reports, 1879; Palbey, Reg. Reports, 1845.
[101] Grant, Am. Jour. Med. Sci., July, 1853, p. 94.
[102] U. S. Census Rpts., 1880. Excludes Detroit; Reg. Rpts., 187.6
[103] Board of Health Reports, 1878, 1880.
[104] U. S. Census Rpts., 1880. Excludes St. Paul and Minneapolis.
[105] U. S. Census Reports, 1880. [106] Ibid.
[107] Report Board of Health, 1887.
[108] U. S. Census Reports, 1880.
[109] Sanders, op. cit.
[110] U. S. Census Reports, 1880.
[111] Blaschke, Méd. Topog. Nova Archangélcensis.

The mortality from pneumonic fever bears the relations to that from phthisis, cancer, diphtheria and typhoid fever shown in the following table:

TABLE IV.—SHOWING PREVALENCE OF PNEUMONIC FEVER COMPARED WITH CERTAIN OTHER DISEASES.

Per cent. of deaths and deaths per 1,000 of population.

LOCALITY.	Years.	Pneumonic Fever.		Phthisis.		Cancer.		Diphtheria.		Typhoid Fever.	
Baltimore[171] . .	1	6.5	1.13	14.1	2.80	2.4	.49	4.0	.70	2.0	.35
Cincinnati[172] .	20	6.7	1.54	13.0	2.96	1.4	.33	3.1	.70	2.4	.56
Connecticut[173]	10	6.6	1.15	13.8	2.20	2.4	.40	5.8	.93	2.7	.44
Hartford[174] . .	6	7.4	1.66	12.8	2.46	2.4	.46	9.1	1.75	2.0	.40
N. Hampsh'e[175]	1	7.7	1.32	13.8	2.45	3.4	.61	2.4	.43	2.2	.40
New York[176] .	1	7.2	1.03	14.0	. . .	2.4	. .	10.0	. .	2.2	. .
Pittsburgh[177] .	14	7.6	1.65	9.6	2.22	. .	. .	5.2	1.31	15.6	3.78
St. Paul[178] . .	1	6.3	.77	7.5	1.20	1.9	.23	9.3	1.14	4.4	.54
Unit'd States[179]	1	8.4	1.26	12.1	1.83	. .	. .	4.9	.76	3.0	.46
Averages . .		7.1	1.27	12.3	2.26	2.3	.42	6.0	.96	4.0	.61

112 Tulloch, op. cit., 1853.
113 Tulloch, l. c.
114 U. S. Census Reports, 1880; Rpt. Reg., 1885.
115 Board of Health Reports.
116 U. S. Census Rpts., 1880; Reg. Rpts., 1878-79. Population exclusive of Newark and Jersey City. Sanders makes the rate .59 per 1,000; see op. cit.
117 U. S. Census Reports, 1880.
118 Rpt. Bd. of Health. See also Stark, Edinb. Med. and Surg. Jour., Vol. lxxv, p. 130, who gives the rate .90.
119 U. S. Census Reports, 1880; Lee, Copland's Med. Dic., N. Y., 1855, Vol. ii, p. 891; Rpts. St. Bd. Health, 1878, 1879, 1885.
120 Rpt. Bd. Health; Dunnel, Am. Jour. Med. Sci., May, 1838.
121 Walton, U. S. Naval Reports, 1879.
122 Sanders, l. c. In two large cities the rate was 1.99.
123 Chamberlain, op. cit.; Sanders, op. cit.
124 U. S. Census Reports, 1880.
125 Tulloch's Reports, 1853.
126 U. S. Census Reports, 1880. Exclusive of five large cities.
127 Ontario Reg. Rpts., 1883-84-85.
128 U. S. Census Reports, 1880.
129 Ontario Reg. Reports, 1883-84-85.
130 Ziemssen, op. cit.; Trébuchet, Ann. d'Hyg. Ann., T. V, gives the rate as 2.50, and Juergensen, Ziemssen's Hand. d. Spec. Path. and Therap., Bd. V, as 3.82 per 1,00.
131 U. S. Census Reports, 1880. Exclusive of five large cities.
132 Board of Health Report, 1879.
133 Report Vital Statistics, 1876; Trans. Col. Phys. and Surg., Vol. ii; Emerson, Am. Jour. Med. Sci., Nov., 1827, p. 116, Nov., 1831, p. 17, July, 1848, p. 13. This author gives the rate—1827-1840—as 1.10.
134 Report Board of Health, 1877-1886.
135 Snow, Report Health Officer, 1877-1880.
136 Reg. Rpts.; U. S. Census Reports, 1880.
137 Board Health Reports.
138 Board Health Reports.
139 Sanders, op. cit.
140 Report Board Health, 1887.
141 Sanders, op. cit.; Chamberlain, op. cit.
142 Report Board of Health, 1876.
143 Report on Vital Statistics.
144 Report Board of Health, 1876.
145 Sanders, l. c. In eight large cities the rate was 1.12.
146 Tulloch, Army Rpts., 1840. In the case of Negroes it was 1.10.
147 Sanders, op. cit.
148 U. S. Census Reports, 1880. Exclusive of Charleston.
149 Ontario Reg. Reports, 1883-84-85.
150 Tulloch, op. cit., 1840. In military life the rate was .50.
151 Report Board of Health.
152 Report Board of Health, 1886.
153 Ontario Reg. Report, 1883-84-85.
154 Sanders, op. cit. In three large cities it was 1.71.
155 U. S. Census Reports, 1880.
156 U. S. Census Reports, 1880.
157 Ontario Reg. Reports, 1883-84-85.
158 Inform. Statis., etc., Torino, 1847-52.
159 U. S. Census Reports, 1880. In 50 large cities the rate was 1.43 per 1,000 of population, and 6.7 per cent. of deaths.
160 Circular No. 6, War Dept. Osterlen, Med. Stat., S. 573, gives the average of 10 years as 4 per cent.
161 U. S. Marine-Hospital Reports.
162 U. S. Census Reports, 1880.
163 U. S. Census Reports, 1880.
164 U. S. Census Reports, 1880. Exclusive of Richmond.
165 U. S. Census Reports, 1880.
166 U. S. Census Reports, 1880.
167 U. S. Census Reports, 1880. Exclusive of Milwaukee.
168 Virchow, Statistik Wiirzburg, 1859.
169 U. S. Census Reports, 1880.
170 Ziemssen, op. cit.; Jahresb. d. Gesundheitsampt d. Canton Zürich, 1848, ff.; Weller, Inaug. Diss., Zürich, 1854, S. 5.
171 Board of Health Report, 1886.
172 Board of Health Report, 1886.
173 Report State Board of Health, 1886.

Osterlen[180] gives the proportion of deaths from pneumonic fever and phthisis as 1.85 and 2.50 per 1000 of population, respectively. Ziemssen[181] places them at 1.70 and 3.20 respectively. Juergensen[182] gives the proportion as 1.70 to 3.23 in London; 2.52 to 3.82 in Paris and 1.13 to 2.96 in Berlin. Klinger[183] found that during the five years, 1868–72, pneumonic fever caused more deaths than phthisis in Bavaria, the proportion being 2.2 and 2.1 per 1000 persons. In Christiana[184] the ratio is 1.16 to 2.85.

In estimating the morbidity of this disease we are met by a very practical difficulty, and that is the impossibility of obtaining statistics which fairly represent the whole body of the population. The available material has all been derived from particular and exclusive classes—such as army and navy returns. That these cannot afford averages applicable to the generality of the inhabitants of the world is self-evident. However I have made use of such materials as are obtainable, and from them constructed the following table:

TABLE V.—SHOWING MORBILITY OF PNEUMONIC FEVER.

AUTHORITY.	Persons.	Cases.	Per 1,000
Circular No. 6, War Dep't., Washington, 1865.	934,444	31,527	33.8
Fitzsimmons, Lancet, 1884, Vol. i, p. 142. . . .	1,465	11	45.2
Forry, Mortal. U. S. Army, Washington, 1840.	3,138	22	7.0
Hermann, Lungenentzündung, etc., S. 13. . .	59,922	396	6.7
Laveran, Mal. des Armeés, Paris, 1875, p. 28. .	53,137	235	4.4
Tulloch, Mortal. British Army, London	542,427	15,850	29.2
U. S. Naval Reports, 1880–81.	21,353	89	4.2
Totals and averages.	1,637,886	48,130	29.9

From this table we find that the average annual morbility of pneumonic fever is 29.9 per 1000 inhabitants.[185] This is somewhat in excess of the amount given by Forry[186] and quoted with approval by Lee[187] and Drake,[188] viz., 23 cases per 1000 of population. I am convinced, however, that both these estimates are excessive, due to the fact that soldiers are more liable to this dis-

174 Board of Health Report, 1887.
175 Report State Board of Health, 1885.
176 Board of Health Report, 1886.
177 Board of Health Reports, 1880-87.
178 Board of Health Report, 1886.
179 U. S. Census Reports, 1880.
180 Med. Statistics, S. 377 u. 566.
181 Op. cit., S. 14.
182 Op. cit., S. 12.
183 Lungenkrankh. in Bayern, München, 1874, S. 2 u. 18.
184 Colles, U. S. Naval Rpts., 1881, p. 414.
185 Hirsch, op. cit., gives a table upon this point which is appended with the comment that to me it is very unsatisfactory. According to this author the annual sickness from this disease is as follows: In Madras, 21.3 for whites and 1.1 for natives; in Bengal, 11; in Bombay, 6.6; in Sierre Leone, .8 for whites and 8 for blacks; in Ceylon, 17.8 for whites and 13.5 for Malays; in the Antilles, 23 for whites and 45 for blacks; in Jamaica, 14 for whites and 12 for blacks; in Mauritius, 22.6 for whites and 18.6 for blacks; in Gibraltar, 15; in Malta, 14.6; in Bermuda, 7; in Cape Town, 29 for whites and 3.6 for Hottentotts; in Cape Country, 23.4; in St. Helena, 4.1; in the Ionian Isles, 10.1; in the United States Army, 14 for cavalry, 13.7 for artillery and 19.7 for infantry; in Canada, 19.7; in Nova Scotia, 14; in Newfoundland, 7.2; and in New Brunswick, 14.
186 Mortal. U. S. Army, Wash., 1840, p. 246.
187 Copland's Med. Dic., N. Y., 1855, Vol, ii, p. 890.
188 Dis. Int. Valley N. A., Phila., 1854, p. 790.

ease[189]—but with a lower death-rate[190]—than are civilians. The death-rate of pneumonic fever, as I shall demonstrate in a subsequent table, is about 18.1 per cent., and the average mortality from it is 1.27 per 1000 inhabitants, as has been shown. Now if we estimate 5.5 cases for each death we would arrive at the result that there are, annually, about 7 cases per 1000 of population; and I am inclined to believe this near the real proportion.

Pneumonic fever constitutes about 1.2 per cent. of all the diseases which the physician is called upon to treat, as shown in the following table:

TABLE VI.—SHOWING PREVALENCE OF PNEUMONIC FEVER COMPARED WITH OTHER DISEASES.

Morbility.

AUTHORITY.	Years.	Cases of all Diseases	Cases Pneumonic Fever.	Per cent.
Alexian Bros. Hospital, Chicago, Report	1	1,514	27	1.8
Armstrong, U. S. Mar. Hosp. Rept., 1886	6	928	36	3.9
Badula Hosp., LaRoche, Pneumonia, p. 66	3	597	7	1.2
Blane, Select. Diss., Vol. i, pp. 207-247	10	3,160	145	4.6
Boston City Hospital, Reports	3	11,581	424	3.8
Brooklyn Naval Hospital, Report	1	201	1	.5
Chelsea Naval Hospital, Report	1	434	13	3.0
Cincinnati Hospital, Reports	2	6,258	124	2.0
Erlangen Krankenhaus, Fritsch, Inaug. Diss. 1878	10	18,754	824	4.3
Garfield Hospital, Washington, Rpt., 1887	1	604	3	.5
German Hospital, Philadelphia, Reports	7	4,068	54	1.3
Jersey City Hospital, Report, 1886	1	882	15	1.8
Jones, Jour. Am. Med. Ass., Aug. 7, 1886	.	6,311	218	3.4
Kaudy Hosp., LaRoche, op. cit., p. 66	3	1,678	30	1.8
Kiel Policlinic, Juergensen, op. cit	.	3,993	203	5.1
Maillot, Fiev. Int., p. 114	1	3,765	6	.4
Marshall, Med. Topog. Ceylon, p. 39	5	1,082	29	2.7
Montreal Hospital, Neppel, Fiev. Int.	4	1,352	84	6.2
Newport Hospital, Reports	3	533	14	2.8
New York Hospital, Reports	10	42,394	577	1.3
New York Night Med. Serv., Med. Gaz.	1	573	29	5.0
Pennsylvania Hospital, Reports	15	32,373	458	1.5
Policlinic Erlangen Univ., Fritsch, Diss.	.	18,752	824	4.5
Providence Hospital, Washington, Reports	1	1,642	9	.5
Roosevelt Hospital, New York, Reports	15	25,662	492	1.9
Sierre Leone Garrison, Tulloch, op. cit	.	5,489	15	.3
St. Louis City Hospitals, Report	3	25,656	410	1.6
St. Mary's Hosp., Cincinnati, Report	5	8,192	103	1.2
St. Paul's City Hospital, Report	2	1,147	27	2.4
Salem Hospital, Report	1	72	2	2.7
Thevenot, Mal. des Europ., etc., p. 232	1	952	5	.5
Tübingen Policlinic, Juergensen, op. cit	3	3,006	112	3.7
University of Penn. Hospital, Reports	4	34,387	36	.1
U. S. Army in Rebellion, Cir. No. 6	2	2,590,712	31,827	1.2
U. S. Marine-Hospital Service, Reports	10	317,602	2,807	.9
U. S. Navy, Reports	3	30,894	168	.5
Kieler Policlinic, Schrœder, Pneum., 1882	.	35,524	1,277	3.6
Kober, Rpt. St. Bd. Health Cal., 1885, p. 192	.	1,500	9	.6
Author	15	30,482	498	1.5
Totals and average	.	3,274,400	41,642	1.2

Writers have varied widely in their estimates of the comparative prevalence of this disease. Juergensen[191] puts it at 3 per cent. of all, and 6.4 per cent. of internal diseases, and Palmer[192] coincides with him. Huss[193] found it the cause of 10 per cent. of internal diseases, Lépine[194] 2 to 3 per cent. of the sickness, whilst the percentage is placed at 1.1 by Hermann[195] and 16.6 by Andral.[196]

189 Hermann, Lungenentzündung, S. 6.
190 Colin, Etudes Clin. de Méd. Mil., Paris, 1863.
191 Opus citata, S. 11.
192 Physician and Surgeon, 1878.
193 Lungenentzündung, Leipzig, 1861, S. 63.
194 Pneumonie, Wien, 1883, S. 15.
195 Lungenentzündung, etc., S. 13.
196 Path. Interne, T. i, p. 366,

Pneumonic fever formed 6.6 per cent. of the cases admitted into the hospitals of Montreal;[197] 2.3 per cent. of the cases in the Children's Hospital of Vienna;[198] .15 per cent. of the diseases of Ceylon;[199] 7 per cent. of the adult, and from 20 to 25 per cent. of the infantile maladies in Paris;[200]

TABLE VII.—SHOWING MORBILITY OF PNEUMONIC FEVER COMPARED WITH CERTAIN OTHER DISEASES.

HOSPITAL.		PER CENT. OF ADMISSIONS.								
		Pneumonic Fever.	Phthisis.	Acute Pleurisy.	Acute Bronchitis.	Scarlatina.	Diphtheria.	Cereb.-spinal Fever.	Typhoid Fever.	Acute Rheumatism
Alexian Bros., Chicago	1	1.8	1.5	.9	.6	.	.	.	.	.
Boston City	1	3.8	4.8	.9	2.2	.4	1.0	.	2.6	1.0
Garfield, Washington	1	.5	6.3	.2	1.4	.	.2	.	2.0	.3
German, Philadelphia	6	1.3	5.0	.9	1.1	.	.	.	6.9	3.3
Jersey City, City	1	1.8	5.5	.7	.6	.	.	.	.4	2.4
Marine-Hosp. Med. Serv.	1	.9	2.1	.4	4.0	.	.	.	.	8.9
Newport, R. I	1	2.8	4.6	.	2.4	.	.	.	6.7	6.7
New York Hospital	10	1.3	1.2	.5	.3	.	.	.	.6	1.4
Pennsylvania	15	1.5	2.1	.8	1.3	.	.	.	.2	3.4
Providence, Washington	1	.5	5.9	1.3	.8	.	.	.	2.2	3.4
Roosevelt	15	1.9	6.0	1.0	.7	.	.1	.1	1.6	2.7
St. Louis City Hospital	2	1.6	5.1	.8	2.6	.	.2	.	.4	3.1
St. Mary's, Cincinnati	5	1.2	6.6	.7	3.6	.3	.	.	3.6	4.1
St. Paul's, City	2	2.4	4.4	.6	1.0	.	.	.	1.5	3.0
University Pa. Hospital	4	.1	2.3	.3	1.3	.	.	.	.2	1.3
Averages	.	1.7	4.5	.6	1.7	.3	.4	.1	2.2	3.2

TABLE VIII.—SHOWING FLUCTUATION OF PNEUMONIC FEVER.

Mortality.

LOCALITY.	Deaths per 1,000 of Population.				
	Years.	Mean.	Maximum.	Minimum.	Fluctuation.
Algiers	5	2.3	2.6	1.6	1.0
Berlin	21	1.1	1.4	.8	.6
Boston	10	1.5	2.0	1.5	.8
Chicago	2	1.3	1.6	1.3	.3
Cincinnati	20	1.5	1.9	.8	1.1
Connecticut	10	1.1	1.6	.7	.9
Copenhagen	15	1.7	2.5	.7	1.8
Cork	9	.4	.7	.2	.5
District of Columbia	6	2.3	2.9	2.1	.8
Dublin	9	.8	1.2	.5	.7
England	11	1.2	1.4	1.1	.3
Edinburgh	3	1.4	1.7	.9	.8
Ghent	4	1.2	1.6	1.0	.6
Halle	10	2.3	3.4	1.4	2.0
Hamburgh	9	2.2	2.6	1.6	1.0
Hartford	5	1.6	2.2	1.2	1.0
Ireland	9	.3	.4	.1	.3
London	17	1.7	2.1	9	1.2
Massachusetts	22	1.3	1.8	.9	.9
Milwaukee	1	.9	1.0	.8	.2
New Haven	10	1.2	1.8	.5	1.3
New Jersey	3	1.1	1.2	1.0	.2
New Orleans	2	1.5	1.7	1.2	.5
Paris	14	2.5	3.2	2.0	1.2
Philadelphia	2	1.5	1.5	1.4	.1
Pittsburgh	7	1.6	2.0	1.4	.6
Providence	4	1.5	1.9	1.0	.9
Rhode Island	10	.9	1.6	.6	1.0
Rochester	2	.9	1.0	.8	.2
San Francisco	2	1.1	1.4	.7	.7
Savannah	16	1.7	3.6	.6	3.0
Zürich	14	2.0	2.6	1.5	1.1
Means of totals	.	1.4	1.8	1.0	.8

197 Neppel, op. cit., p. 29.
198 Gölis, Kinderkrankh., Wien, 1820.
199 Grisolle, Traité de la Pneumonie, Paris, 1850, p. 130.
200 Lombard, Arch. Gen. de Méd., T. xxv, p. 68.

2.6 per cent. of the cases in the Vienna hospitals;[201] 6.6 per cent. of the admittances into the Paris hospitals;[202] 2.5 per cent. of the sickness in the Berlin hospitals;[203] 2 per cent. in those of Stüttgart;[204] and 17 per cent. in Salpêtrière of Paris.[205]

Pneumonic fever prevails, in comparison with certain other diseases, as shown in table VII.[206]

TABLE IX.—SHOWING FLUCTUATION OF PNEUMONIC FEVER.

Morbility.

HOSPITAL.	Per ct. of admissions				
	Years.	Mean.	Maximum.	Minimum.	Fluctuation.
German Hospital, Philadelphia	7	1.3	3.0	.9	2.1
Kieler Poliklinik	30	3.6	6.3	2.1	4.2
Newport Hospital	3	2.8	4.0	1.6	2.4
New York Hospital	10	1.3	1.8	.8	1.0
Pennsylvania Hospital	15	1.5	2.7	.6	2.1
Roosevelt Hospital	15	1.9	2.8	.8	2.0
St. Louis City Hospitals	3	1.6	1.8	1.4	.4
St. Mary's Hospital, Cincinnati	5	1.2	2.1	1.4	.7
St. Paul's City Hospital	2	2.4	3.4	1.5	1.9
University of Pennsylvania Hospital	4	.1	.2	.1	.1
United States Marine-Hospital Service	10	.9	2.1	.5	1.6
Means of totals		1.5	2.4	.9	1.4

The annual prevalence of pneumonic fever in any given locality will vary from time to time, within wide limits, as shown in tables VIII and IX.[207]

Huss[208] found the admissions for pneumonic fever into the Seraphim hospital of Stockholm during sixteen years to vary from 6.5 per cent. to 15.4 per cent. of internal diseases. His statistics give a mean of 10 per cent. and a fluctuation of 8.9 per cent.

THE DETECTION OF THE BACILLUS TUBERCULOSIS, TECHNIQUE.

Read before the Chicago Medical Society February, 18, 1889.

BY FRANK BILLINGS, M.D.,
OF CHICAGO.

The form of the bacillus tuberculosis is not characteristic, and it cannot, therefore, be differentiated from other pathogenic and non-pathogenic bacteria by its form alone. It is a very thin bacillus, about 2 to 5 micromillimetres in length (from one-quarter to one-half the diameter of a red blood-corpuscle). It is usually slightly bent.

Like all protoplasmic cells it has an affinity for the aniline colors, and its reaction to these colors is characteristic when the aniline is combined with a mordant.

To elicit the characteristic reaction of the bacillus to the aniline colors it is necessary to proceed in a methodical manner. The instruments used, forceps, needles, etc., should be clean, sterilzed by heating in a gas or other flame. The cover-glasses and slides should be cleansed in fine alcohol.

The material supposed to contain the bacilli should be collected in a clean vessel, and when collected should be protected from contamination by the air, etc.

The material should be spread in a very thin layer upon a cover-glass, by means of a needle, or by placing a small amount upon one glass and then pressing another cover-glass upon the first, thus making a thin layer upon the two cover-glasses. The thin film is then allowed to dry upon the cover-glass, or the drying may be hastened by warming it over a gas flame. Then, when dry, by passing the cover-glass quickly two or three times through the flame, the albumin usually present in the medium, fixes the film upon the glass.

The cover-glass is now ready for the aniline dye. One may use any color, but aniline violet, methyl blue or fuchsin is usually employed. Fuchsin is the most often used, because its bright red renders the bacilli more prominent to most observers; and, too, one may use with it, better than with the other colors, a contrast color for the ground substance on the cover-glass.

The color used must be combined with a mordant, which so fixes it in the bacillus of tuberculosis as to render it very much less susceptible to the bleaching effects of the mineral acids, while it does not so affect other bacteria, with but two exceptions, which I shall mention later.

There are several substances that may be used as a mordant; aniline water, carbolic acid, tannic acid, and others. Aniline water was first used, and is still by some, but the mordant now in common use, and the one used by Prof. Koch, is carbolic acid. It has the advantage over aniline water that a solution of it with the color may be kept indefinitely, while the aniline water solution must be made each time it is used.

The following solution of fuchsin (Ziehl & Neelson) is a satisfactory one in every way:

Take of	Fuchsin	1 part,
	Acidi carbolici	5 parts,
	Alcoholis	10 "
	Aquæ distillatæ	100 "

Mix in the order given.

A few drops of the staining fluid are placed upon the cover-glass, held in a forceps with the film upwards over a gas or alcohol lamp flame until the solution boils or gives off steam. It is then washed in water and is ready for the process of bleaching.

For bleaching, any of the mineral acids may be used. A 25 to 33 per centum watery solution of

[201] Juergensen, op. cit., S. 12.
[202] Grisolle, op. cit., p. 127.
[203] Juergensen, op. cit., S. 12.
[204] Ibid.
[205] Grisolle, op. cit., p. 127.
[206] For further information on this subject consult Huss, op. cit., Juergensen, op. cit., Fritsch, Erlangen Diss., and others.
[207] No effort has been made to render these tables exhaustive.
[208] Op. cit., S. 63.

hydrochloric, nitric or sulphuric acid is used. Koch prefers nitric acid, his laboratory assistant uses sulphuric, while at Vienna hydrochloric is chiefly used. It is probably immaterial which acid is employed.

The stained cover-glass is immersed in the acid solution for a moment, then in a 70 per cent, water solution of alcohol, and finally washed in water. The immersion in acid, alcohol and water, successively, being repeated until the color is almost or quite bleached. This process leaves the bacillus tuberculosis colored red, while the ground substance and all other bacteria, with the two exceptions mentioned, are bleached. The mordant used enables the bacilli of tuberculosis to retain the color. Too long immersion in the acid will also overcome the action of the mordant and render the examination *nil*. The cover-glass should be finally thoroughly washed in water to remove all acid, otherwise the slight amount of acid remaining will gradually fade the color and in a few months the preparation will become worthless.

The cover-glass may now be mounted on a slide in water or glycerine, or, after drying, in Canada balsam. One may, however, use a contrast color—methyl blue for the ground work. It is only necessary to float the cover-glass, with the film downward, upon a 1 to 2 per cent. watery solution of the methyl blue for five minutes. The excess of blue color is washed off with water, the cover-glass dried and mounted. The bacilli of tuberculosis will be seen stained red and other elements will be blue.

For tissue containing the bacilli it is necessary to immerse the sections for from 12 to 24 hours in the fuchsin solution. They are then decolorized by immersion in the acid solution, the alcohol, etc., until only a faint redness remains. The sections are then dehydrated in alcohol and cleared up in the oil of cloves. When mounted the bacilli are seen red, the tissue decolorized. The methyl blue may be used as a contrast color, also, for sections.

To easily detect the bacilli so prepared, one should have a microscope magnifying at least 450 diameters ; however, the bacilli may be seen with a less powerful glass. An ordinary stand and substage will do for cover-glass preparations, but an Abbé substage condenser is a decided aid to the discovery of the bacilli in cover-glass preparations, and it is absolutely necessary in examining sections.

The discovery of the bacillus tuberculosis in the excretions, secretion or exudates examined is positively diagnostic of a tubercular disease. When it cannot be detected its absence is not of much diagnostic value, for it may be present in such small numbers as to render its detection difficult or impossible. When it is not found readily repeated examinations of material collected on different days must be made to make its absence of any worth as a negative sign.

The bacillus is most easily detected in the sputa of tuberculosis pulmonum. It is most difficult to detect in the blood, even in cases of acute general tuberculosis.

It is not usually difficult, as a rule, to detect it in the exudates into serous cavities ; as in tubercular pleuritis, tubercular peritonitis and tubercular synovitis. I have found the bacillus in the contents of a distended Fallopian tube.

In tubercular disease of bone it is usually present in the cheesy infiltrate, but is difficult to find in the pus from sinuses in tubercular diseases of bone.

In the urine the bacillus is difficult to detect because of the bulk of urine and the decomposing effects of the urine. *Then the preputial and labial smegma bacillus* gives the same color reaction as the tubercle bacillus, and its form is so nearly like the bacillus of tuberculosis that it cannot be differentiated from it with the microscope. The presence, therefore, of a bacillus in secretions from the genitals, giving the color reaction and presenting the form of the bacillus tuberculosis is not here, as it is elsewhere, a positive sign of tuberculosis.

In tubercular disease of the skin and mucous membranes the secretion therefrom sometimes contains the bacillus. Sections made from tissue taken from tubercular ulcers usually yield the bacillus.

The bacillus of leprosy is nearly like the tubercle bacillus in form, and it gives the same color reaction. The clinical course of leprosy is so distinct, and the disease is so rare in this climate that it is not difficult to exclude it when considering a tubercular disease.

No. 235 State Street.

COMPLETE REMOVAL OF THE UTERUS AND ITS APPENDAGES FOR FIBRO-CYSTIC GROWTH.

BY H. C. PEARCE, A.M., PH.D., M.D.,
PROFESSOR OF OBSTETRICS, COLUMBUS MEDICAL COLLEGE, COLUMBUS OHIO.
Reported by T. M. TALBOT, A.M., M.D.

About January 1, 1888, Dr. Pearce, of Urbana, Ohio, was consulted by Mrs. C., æt. 36, in reference to an abdominal enlargement. On examination a globular body, the size of a fœtal head at birth, was found in the right hypogastric region. Cystic disease of the right ovary was diagnosticated. The tumor being small and the patient anæmic and in poor general health, noninterference for the present was advised. The patient was put upon bark and iron, and a general tonic treatment. Under this treatment she increased in strength and health, but with this improvement

there was a rapid increase in the growth of the tumor.

August 1, 1888, the patient again consulted Dr. Pearce. The tumor now filled the entire abdominal cavity, reaching up to the ensiform cartilage. The patient was nervous and irritable, and owing to the great distention of the abdominal muscles, she was suffering intensely from neuralgia at the tendonous insertions of these muscles. An immediate operation for the removal of the tumor was advised, but the patient, being of an exceedingly nervous temperament, could not make up her mind to undergo an operation. Accordingly, in the hope of obtaining relief otherwise than by operation, she consulted surgeons in both Cleveland and Cincinnati. These advised immediate removal of the tumor.

Meanwhile the tumor grew larger, and the patient grew weaker and more emaciated. It was not until death seemed imminent that she consented to an operation.

On November 5, 1888, assisted by Drs. J. H. Ayers, I. W. Goddard, H. M. Pearce and T. M. Talbot, Dr. Pearce operated at the home of the patient. This home, by the way, was a comfortable and commodious house. A room was selected with a view to size, light and ventilation. It was heated by an open grate, and received light from the west and south.

Before begining the operation the temperature of the room was raised to 80° F. The patient was then etherized and placed upon the table. The abdomen was washed thoroughly with soap and water, then shaved, and finally washed with a 5 per cent. solution of carbolic acid.

The operation was begun by making an exploratory incision, two and one-half inches long in the median line, about half-way between the umbilicus and the symphysis pubis. Examination revealed a large fibro-cystic tumor of the uterus, strongly adherent to the right abdominal wall and surrounding tissue, and which had grown from the uterus and extended up to the ensiform cartilage.

The primary incision, being too small to make a complete examination, was increased to three and one-half inches. The ovariotomy trochar and cannula was then introduced, but the cyst could be only partially emptied of its fluid contents. The cannula was reintroduced at different points, but the fluid still remained to a considerable extent. Further examination showed the cyst to be divided by thick fibrous walls into three principal compartments. Each of these compartments was divided into numberless compartments or cysts by fibrous bands extending in all directions from the walls of the principal cyst. This condition, of necessity, rendered complete evacuation of the fluid contents of the tumor impossible. Accordingly the mass was loosened from its posterior and lateral adhesions, and with difficulty it was drawn out of the original opening of three and one-half inches. After bringing out the sac or fibrous mass it was found that the growth had began at the junction of the body of the uterus with the cervix—the point known as the isthmus. The growth enveloped the entire body of the uterus, and involved and completely surrounded both ovaries and broad ligaments. It was bound down laterally and posteriorly by fibrous adhesions that were difficult to break up, and which left a large bleeding surface within the cavity of the abdomen. These were unlooked for complications; and it left but one of two courses to pursue, viz.: the return of the mass entire or the removal of the tumor, including the uterus and all of its appendages.

The latter procedure was resolved upon, and carried out in the following manner: A Spencer Well's clamp was placed just below the junction of the body and cervix, and then tightened as much as possible without severing the parts. All the arteries supplying the broad ligaments and uterus were then tied with silk braid. This being done, the entire mass, tumor, uterus, and appendages was removed by cutting it off just above the clamp. The mass weighed thirty pounds.

The abdominal cavity was now thoroughly washed out with water, previously boiled and cooled to a temperature of 100° F. Several silk-braid sutures were passed through the abdominal walls, including the peritoneum; but before trying them a half-inch glass drainage tube was introduced into Douglas' cul-de-sac, and the peritoneum brought together by continued catgut suture. The ends of the deep suture were then tied, thus completely closing the wound except where the tube and clamp were.

The cavity was again washed out with warm water until the water came away clear. The incision was dusted over with powdered iodoform, and covered with silk isinglass plaster, moistened with a 5 per cent. solution of carbolic acid; over this plaster was placed a layer of iodoform gauze, then a layer of absorbent cotton, and all were held in place by a tight binder.

In this condition the patient was put to bed, and rubber bottles, filled with hot water, were placed to the extremities. Although the operation was quite tedious, lasting almost an hour, there was little apparent shock. This was very remarkable, when we take into consideration the frail and nervous condition of the woman, the nature and extent of the operation, together with the extensive adhesions of the tumor to the walls of the abdomen.

Twelve hours after the operation the temperature rose to 99.5° F., and the pulse to 120; eighteen hours after the temperature was 100° and pulse 135. At the end of thirty-six hours

the temperature was 100.5° F. and pulse 115. The temperature remained thus for five days, but the pulse dropped to 98. From this time on the temperature and pulse were practically normal.

The subsequent treatment is that to which especial attention is called. At the end of eighteen hours all the dressings were taken off, and the accumulated fluid removed as follows: A flexible rubber tube, about the size of a No. 12 soft rubber catheter, was attached to the nozzle of a syringe; the free end of this tube was passed in the drainage tube to Douglas' cul-de-sac, and the fluid drawn up into the syringe. The fluid thus removed amounted to about three ounces, and was sanguineous and very fœtid in character. After the removal of the fluid the cavity was thoroughly washed out with water previously boiled and tempered to 102° F. The remaining water was withdrawn by means of the syringe as before described. No antiseptics were added to the water, nor were any antiseptics at any time used within the cavity of the abdomen. This mode of treatment was followed out twice in every twenty-four hours as long as this fœtid fluid, before mentioned, accumulated in the cavity —which was twenty-two days.

On the twenty-second day the clamp came off, leaving a clean healthy-looking stump of the cervix. The sutures that still remained were removed, the glass drainage tube taken out, and a small rubber drainage tube was substituted. This tube was left in for one week. The syringe and a smaller rubber tube was used to draw out whatever pus accumulated, and the cavity washed out as before—though now once a day.

Particular mention is thus made of the washing out process, not because it is new in such cases, but because of the frequency with which it was employed. That this frequent and complete irrigation of the cavity has been of the greatest utility in this case is evidenced by the fact, that during the whole time, though removal of the tumor and uterus left a large suppurating surface within the cavity of the abdomen, there was little rise of temperature, and no tympanites nor tenderness over the abdomen.

The diet during the first three weeks was almost exclusively milk, which was taken cold and in liberal quantities. Since the first four weeks the diet has been somewhat liberal and varied. The other treatment has been such as is customary in ordinary abdominal sections.

The patient's recovery, owing to her emaciated and weakened condition prior to the operation, has been slow but steady. The wound has closed, leaving a smooth cicatrix about two and one-half inches long. The patient's appetite and general appearance have improved very much since the operation, and she has gained very rapidly in flesh. Her recovery is complete and very satisfactory.

MEDICAL PROGRESS.

A METHOD OF GENERATING NEUTRAL FUMES OF AMMONIUM CHLORIDE OR BROMIDE FOR INHALATION has been devised by DR. PATRICK WILLIAM MAXWELL, of Dublin. The instrument is made by Messrs. Anderson and Adams, 68 Grafton St., Dublin. It consists of a wide piece of glass tube, like the cylinder of an ordinary glass syringe, placed horizontally on two wooden uprights, About 15 grs. of ammonium chloride are introduced by a spoon through the wide end of this tube, and are placed in a little heap in the centre. The base is then lightly stopped with cotton wool. A lighted spirit-lamp, placed below the tube volatilizes the salt. A piece of india-rubber tubing with a glass mouthpiece is attached to the narrow end of the tube, by means of which the fumes are inhaled. A current of cold air rushing in by the large end of the horizontal tube mixes with the fumes and reduces their temperature, so that they are not more than slightly warm. These fumes are perfectly neutral from first to last, as is proved by passing them through red or blue litmus solution. Even phenol-phthalein does not become colored. There is also no free chlorine, for starch paper is unaffected. In the course of the inhaling tube is placed a glass bulb filled with glass wool moistened with water. This prevents the fumes from being too dry. Besides being perfectly neutral the fumes supplied by this instrument have the advantage of containing more ammonium chloride than is contained in the same volume of fumes from the ordinary inhalers.

When it is desired to apply the fumes to the middle ear a tube rather longer than the ordinary one can be attached to an Eustachian catheter, and the fumes pumped in by an india-rubber hand-ball fitted to the larger end of the horizontal tube.

The fumes, if desired, can be medicated by ol. pin. sylvest., eucalyptus, etc., by dropping about 5 ♏ of the oil upon the wool at the wide end of the tube.

As the iodine and bromine salts seem, when given internally, to have a greater selective affinity for the nose and throat than the chlorides, it occurred to me to try whether their ammonium compounds could be volatilized for inhalation. In the case of iodide of ammonium I found that though the greater part was volatilized as such, still it was mixed with so much free iodine and ammonia as to be very irritating and quite unfit for inhalation. In the case of bromine of ammonium, when only a moderate heat is used, the salt volatilizes unchanged, but as the temperature rises the odor of bromine can easily be detected in the fumes. Its presence can also be shown by its blueing starch and iodide paper. It was natural to expect, at least an equal amount of free am-

monia. Red litmus was not changed, but phenolphthalein gave a slight red. Ammonia is therefore present, but only in very small quantity. The quantity of free bromine must also be very small, as none of the patients who have as yet used these fumes have found them irritating. If the glass-wool is wet with an aqueous solution of resorcin of about 20 grs. to the ℥j, all free bromine will be absorbed from the fumes. All ammonia is also, as already stated, absorbed by the water, so the fumes may be said to be neutral and pure.

The action of bromide of ammonium fumes seems to be very similar to that of the chloride. The bromide seems to draw more fluid from the mucous membrane, its greater osmotic effect being due probably to its greater molecular weight; it seems to have a sedative action on the mucous membrane of the entire nose and throat. This has been observed for some time as regards the pharynx. As the internal administration of the bromides is occasionally useful in tinnitus, I have thought it worth while trying its effect locally by blowing the fumes into the middle ear. Of course I do not suppose that this would benefit tinnitus of nervous origin, but it might be useful where congestion of the middle ear was the cause. As yet I cannot speak positively as to its effect in this way. I have, however, at present three cases of chronic catarrh of the middle ear with tinnitus which have resisted all the usual remedies. Each of these patients experiences a temporary diminution in tinnitus after applying the fumes through the catheter.[1] The strongest hydrobromic acid (33 per cent. gives off no vapor. I failed to produce any fumes by drawing air through such a solution and mixing it with ammonia. It is, therefore, evident that the ordinary apparatus for producing the chloride would be of no use for generating the bromide of ammonium.—*Dublin Journal of Medical Science*, March, 1889.

TINCTURE OF STROPHANTHUS.—DR. HERMAN HAAS has made a careful study of the action of tincture of strophanthus upon the visible, tactile, and graphic cardiac impulse. Fraser's tincture was used in doses of ten to thirty, or even up to fifty drops. No dangerous symptoms or cumulative action appeared, the appetite improved under its administration, which is contrast to digitalis in many cases. With other observers, he found the pulse slowed, and the patients improved under its use. As a diuretic it was successful in cases in which digitalis had been without avail. In order to observe the effect of strophanthus on the cardiac impulse only, three patients were used who showed a cardiac impulse which could be recognized by the eye and hand, when the patient was lying down; care was taken to observe the effect of a sitting posture or standing upon the cardiac impulse; curves of both the cardiac impulse and the respiration were taken at the same time.

Before giving any dose it was necessary to study carefully the cardiograms characteristic of that individual. After this had been done, thirty to seventy drops of tincture of strophanthus were given, distributed over one or two days; curves were then taken for several successive days. After the effect of the new drug had passed off, it was repeated, and after a sufficient number of observations had been taken, and an interval allowed, digitalis was given, and the cardiograms of the two drugs were compared.

The results of the observations in all of the above (more than twenty cases) were very similar. It seems that five hours after the administration of tincture of strophanthus the character of the apex beat changes, it becomes ten to twenty beats slower per minute; the heart beat is quieter, and the impulse is weaker. The softening of the blow in the intercostal spaces is noticeable both to eye and finger, as well as to the open hand applied to the chest. In all cases in which there was not considerable hypertrophy of the heart, its lessened activity rapidly went went so far that the point of cardiac pulsation was found only with difficulty, or not at all. This action was observed in all cases for a longer or shorter time, according to the dose or the amount of hypertrophy.

Dr. Haas considers the action of strophanthus to be one that diminishes the activity of the heart's muscle, as well as of the muscular layer of the blood-vessels; an action, in other words, not similar to that of digitalis, but directly the opposite. He thinks it doubtful in the light of his observations, if strophanthus increases the blood-pressure, notwithstanding Fraser's observations showing that the heart's muscle is stimulated to make stronger contractions under the influence of this drug.—*Deutsches Archiv für klinische Medicin*, vol. xliii, p. 353.

TREATMENT OF CHRONIC PHARYNGITIS.—In an admirable article by PROF. B. FRÄNKEL, of Berlin (*Therap. Monats.*, Nov. 1888), stress is judiciously laid upon individualization of treatment to suit individual cases, instead of routine measures adopted for universal use. Thus treatment suitable for hypertrophic cases injures atrophic cases, and *vice versa*, while the management of the transitional stages demands an experienced judgment. Precedent disease of the naso-pharyngeal region and of the nasal passages requires topical treatment at the same time; and its relief by such measures is sometimes followed by spontaneous recession of the morbid processes in the oropharyngeal region. At the same time it is incorrect to attribute general pharyngeal catarrh to precedent disease of the nose and of

[1] The condition of one patient remains unchanged. The other two are much improved (Feb. 16th).

naso-pharynx, as has been so much urged by several American writers.

The first indication in treatment is that of the cause. Hence, obstructions in the nose must be combated to restore nasal respiration, and disorders of the mouth and teeth must be corrected. The surroundings of the patient must be modified when at fault, as well as any injurious avocation. habit, or mode of diet or of living. Proper clothing and underclothing are necessary to secure immunity from susceptibilities to cold. As to constitutional treatment, little is to be expected, but change of climate is often of great benefit.

Topical treatment is of chief importance, even in health resorts. The choice of topical agents, and the proper methods of employing them, are carefully detailed.—*American Journal of the Medical Sciences*, March, 1889.

COLOR REACTIONS FOR FREE HYDROCHLORIC ACID IN THE GASTRIC CONTENTS.—SCHAEFFER (*Zeitsch. f. klin. Med.*, B. xv. 162, 1888) reviews the different color reactions for hydrochloric acid, the principal ones of these being, he says, 1, the aniline colors; 2, tropäolin; 3, Congo-red; 4, Mohr's reagent; 5, Uffelmann's test; 6, Günzburg's reagent. Congo-red he considers of no value, for, as Boas has shown, lactic acid will produce the same blueing as hydrochloric acid does. Uffelmann's carbolated-iron reaction is not at all delicate for the inorganic acid. Moreover, a yellow color is produced by a mixture of lactic and hydrochloric acids in certain proportions. For lactic acid the test is delicate, provided no glucose be present, with which it will produce the same tint; and glucose occurs in every stomach when the starches have been ingested.

Mohr's reagent is claimed to be reliable, and the author admits that it is so, in so far that no other substance but hydrochloric acid will give with it the peculiar coloration. His experiments have shown him, however, that it is far from delicate, and that it often fails to reveal the acid when other tests show its presence. Tropäolin is uninfluenced by any organic acid, and is very delicate, especially when used in the form of a tropäolin paper. It is decidedly to be preferred to Mohr's test, though it is not so sensitive as the methyl-violet and Günzburg's reactions.

Of the aniline colors, methyl-violet is the only one largely used, the others not having been found satisfactory. It is very delicate, but unfortunately not reliable, since other substances will produce the same change of color. Especially is it true that a 5 per cent. solution of lactic acid (a strength not so seldom found in the stomach) and of peptone will produce it. The changing from violet to blue may occur, therefore, when there is not a trace of hydrochloric acid present, but the absence of this change is a positive proof of the absence of the acid. Günzburg's reagent is composed of 2 grams phloroglucin and 1 gram vanillin, dissolved in 30 ccm. alcohol. One or two drops of this are mixed with the same quantity of the fluid from the gastric contents, and heated gently in a shallow porcelain dish. At the edges of the fluid, as it is rolled back and forth, there develops a deep red color if organic acids are present. The author has made careful trials of this reagent, and finds that when the red color does not appear, the other reactions for hydrochloric acid are also, absent. He also details his experiments in full which convinced him that the Gunzburg reaction was only absent when there was a complete absence of digestive power in the gastric secretion, depending on a diminution of the free hydrochloric acid. The reaction is not produced by any other body occurring in the gastric secretion than free hydrochloric acid, and is not interfered with by the presence of any other substance. The acid may be present and yet not answer to the test; it being combined with inorganic and organic bases. Thus, in carcinoma ventriculi, if hydrochloric acid be added to the gastric contents, some of it will disappear, having replaced the lactic acid in its combinations and set it free. In these cases, of course, the phloroglucin-vanillin test is negative; but it is always positive when any free hydrochloric acid *capable of digesting* is present. This last clause is, after all, the most important one, for whether any other form of the acid occurs is a matter of indifference from a clinical standpoint.

PREVENTION OF SUMMER DIARRHŒA IN CHILDREN.—DR. L. EMMET HOLT says (*Medical News*, Feb. 23, 1889): The treatment of follicular ulceration of the intestine is extremely unsatisfactory. I believe that the great majority of these cases are fatal. Certainly, I have never seen at autopsy in a child anything which resembled a cicatrized follicular ulcer. Successful treatment must be in the nature of prevention. Prevention must have regard to all the milder intestinal catarrhs.

Regarding neglected diarrhœas during dentition, so much has been said recently that it is scarcely necessary to enter here again a protest. There is to my mind no more reason why an intestinal catarrh should not be treated, and, if possible, cured during dentition than at any other time. The fact that a child with whooping-cough is extremely liable to bronchitis and pneumonia has never been given as a reason why these complications should not be treated promptly and energetically when they arise.

Is an intestinal catarrh ever salutary? This is questionable. A number of loose movements may be of advantage to expel undigested food or other irritating matertals from the intestine, but

that a persistent intestinal catarrh, even if not severe, is an advantage to any child at any period remains to be proven. The medical profession should take strong ground against the prevalent popular opinion, that so long as the general health is not affected, an intestinal catarrh is not only of no importance, but may, during bronchitis or dentition, even be beneficial, and that to cure it might be injurious. It is in such cases as these that though amenable to proper treatment in the earlier stages, when allowed to run on, as they often are for weeks or even months, the foundation for grave and even fatal forms of diarrhœal disease is often laid.

The prophylactic treatment involves then the early recognition and intelligent treatment of all the forms of dyspeptic catarrh; in other words, it means that we must secure proper digestion, and this depends chiefly upon proper feeding.

Our attention has been repeatedly called of late to the importance of seeing that our milk and other infant foods are pure and free from germs and putrefactive products. This is all important. Another danger which has not been often enough emphasized is overfeeding. During the past two years I have been trying to get at some exact data regarding the proper amount of food which an infant, who is artificially fed, should receive at the different periods. This has been studied, first, by measuring carefully at autopsies the capacity of the stomach; and, secondly, by weighing healthy infants who were nursed at proper intervals, before and after they were put to the breast. While I have not yet accumulated sufficient statistics for publication, still enough has been learned so far as to show that the figures given in most of our books are altogether too large, and that the vast majority of hand-fed infants are *very greatly overfed*. Difficulty and failure may result from this fact where every other condition for success has been attended to.

In conclusion I would emphasize the following points:

1. Children should not be overfed at any time, but especially not in summer.

2. At this season, also, every dyspeptic catarrh should be attended to; many of these are promptly curable by merely clearing out the intestine and then cutting down the quantity of food.

3. Should an intestinal catarrh, even a very mild one, continue for two or three weeks, one may be pretty certain that he has something more than a functional disorder to deal with.

4. Every mild catarrh should be looked upon as the possible precursor of a severe type of intestinal disease, either near or remote.

5. In the treatment of all diarrhœal diseases it should be borne in mind that there is something more to be considered than the bacteria and the products of decomposition, viz., the anatomical changes.

MILROY'S MEDIO-TARSAL AMPUTATION.—At the meeting of the Surgical Section of the Medico-Chirurgical Society of Glasgow on January 25, DR. MILROY, of Kilwinning, exhibited a patient upon whom he had performed a new medio-tarsal amputation, and gave the following account:

On the evening of September 7, 1885, I was called to attend John Young, æt. 19, who had sustained a severe injury to the foot. I learned that a piece of iron about 2 tons in weight had fallen upon the back of his right foot. This weight had crushed and abused the tissues and bones so much, that amputation was considered absolutely necessary. The joint between the internal cuneiform and scaphoid was opened by the falling metal, and the cuboid was broken. The strong plantar tissues remained intact. On proceeding to amputate I left the scaphoid, disarticulated the cuboid, and then dissected a long flap from the sole of the foot. The dressings were first changed on the sixth day, when everything looked well. Progress from this time was uninterrupted. In less than a month the stump was perfectly healed. A short time afterwards he was allowed to go about on crutches, which he by-and-by threw aside, took for a short time to walking-sticks, and finally walked without any assistance. Nearly three and one-half years have elapsed since I performed this operation, and the cicatrix is no nearer the sole of the foot than it was six months after the operation. This young man can walk twenty miles at a stretch. He is working in a foundry where he requires to be on his feet for ten or twelve hours daily, still he complains of no pain in the stump. He walks with a slight spring, he has little or no halt, and wears an ordinary boot. I attribute these happy results to leaving the scaphoid bone. This operation may have been performed hundreds of times, for aught I know to the contrary. It is not, however, taught in our schools, or mentioned in our ordinary text-books. In the Scotch schools we are told that if we cannot perform a Lisfranc, we should amputate at the ankle-joint by a Syme; at any rate we should keep clear of Chopart. I have in this instance kept clear of the much tabooed Chopart and of Syme also. This stump, to my mind, is superior to a Syme, and much superior to Chopart. There is a little arch formed by the scaphoid, astragalus, and os calcis. The weight of the body comes down almost on the keystone of this little arch. The scaphoid undoubtedly falls from the original position which it occupied in the ordinary and larger arch of the foot, but not so far as to bring the cicatrix under. I find that in such a case as this it falls about 25°, and the os calcis is raised the same. Now, had I made a Chopart instead, no arch would have been left, and the astragalus would fall through 35°, whilst the os calcis would be raised the same. This makes a very great difference, and would be cer-

tain to bring the cicatrix under; besides, the weight of the body no longer falls on the centre, but gives an advantage to the tendo Achillis of about 2 to 1. These facts, then, render this amputation far superior to Chopart's; but it is also superior to Syme's in this—the length of the limb is maintained; he has not that limp peculiar to a Syme; he does not require to wear anything but an ordinary boot; his base of support is greater; and he has, as I have already said, a slight spring. With these few remarks I wish to commend this operation to the consideration of you hospital surgeons, whose experience in operations amongst the tarsal bones is much greater than mine.—*Glasgow Medical Journal*, March, 1889.

FRACTURE OF TWELFTH RIB.—MR. JAMES CANTILE, of Hong Kong, reports two cases of this very rare injury.

Case 1.—On January 2, 1889, a man, the worse for drink, fell from his bed, a height of 3½ feet, on to a spittoon. The violence of the fall was such that the stoneware spittoon was broken in two. Not until the next day did the patient find inconvenience or pain. On the third day after the accident, he came under my observation, when a fracture of the left twelfth rib was evident. The rib was fractured 2 inches behind its tip; the distal portion of the bone was freely movable, and its broken end posteriorly overlapped the proximal portion slightly. Crepitus was evident both to touch and hearing, and to both the patient and myself. There were no complications. An encirclement of flannel gave sufficient support to render the patient more comfortable.

Case 2.—A patient came under my care, in the out-patient room, Charing Cross Hospital, in June, 1882, with fracture of both twelfth ribs. The history given was that of a fall backwards on to the edge of a plank, about 2 feet from the ground. The plank caught the patient across the loins, or rather exactly on the twelfth ribs. The fractures were palpable both to the bystanders and the patient, and the signs and symptoms coincided almost exactly with the fracture recorded under Case 1. No complications arose. The treatment was simply that of support by a flannel bandage, and the bones united with only a small knob of callus around the seat of fracture.

In the same clinic as Case 2 a case of fractured right eleventh rib was met with.—*British Medical Journal*, March 9, 1889.

THE CONTAGIOUSNESS OF PNEUMONIA.—In a long article on this subject NETTER reviews the epidemics of pneumonia which have been recorded, and adds a few other instances which have come within his own experience. His most important conclusions are as follows:

1. Pneumonia is a contagious disease of parasitic origin, and is transmissible either directly or by the intervention of a third person, or by inanimate objects, such as wearing apparel, etc.

2. The pneumococci are not destroyed by desiccation, and are diffusible through the air, but not to great distances, at most the interval between three hospital beds. They maintain their virulence for a period which has not yet been definitely determined, but probably never more than three years.

3. Contagion is possible through the entire course of the disease and even after recovery.

4. The period of incubation averages from five to seven days, but may vary between one and twenty.

5. Patients who have passed through a pneumonia are dangerous both to themselves and their neighbors, as living micrococci may be found in their saliva many years after. Thence in part the epidemic appearances of the disease in certain families during long periods, and also its frequent recurrence in certain individuals who have once survived it.

6. Rigid quarantine of the patients seems unnecessary, but other patients and healthy persons should not be brought into too intimate relations with them. The sick-room must be kept well ventilated and clean, the sputum disinfected, and the cocci lurking in the mouth destroyed so far as possible.—*Boston Med. and Surg. Journal*, February 21, 1889.

POSOLOGY OF SOME OF THE LATEST REMEDIES.—From a lengthy compilation in *Noveaux Remedes* for February, embracing a number of drugs which, while comparatively new, are no longer novelties to the pharmacist or physician, we select the following, giving in the first column the maximum single dose for an adult, and in the second the largest quantity that may be safely administered in the course of twenty-four hours:

Article	Maximum dose.	Amount that may be taken in a day.
Acid cubebic	16.00 grs.	80 grs.
Acid sclerotinic	1.00 gr.	4 grs.
Adonidine	0.1 gr.	0.3 gr.
Amylene hydrate	80 minims.	
Anemonine	0.50 gr.	1.50 grs.
Apiol	16.00 grs.	60.00 grs.
Apocodeine	0.50 gr.	1.50 grs.
Arbutine	16.00 grs.	60.00 grs.
Arsenic bromide	0.16 gr.	
Aspidospermine muriate	0.05 gr.	0.10 gr.
Baptistine	0.05 gr.	1.50 grs.
Berberine sulphate	1.00 gr.	3.00 grs.
Boldoglucin	60.00 grs.	240.00 grs.
Butyl chloral	16.00 grs.	60.00 grs.
Chrysarobin	0.08 grs.	0.25 gr.
Convallamarine	0.10 gr.	4.00 grs.
Cotoine	0.50 gr.	2.00 grs.
Ethoxycaffeine	10.00 grs.	30.00 grs.
Ethyl bromide	20 minims.	1 dram.
Ethyl iodide	20 minims.	1 dram.
Euonymine	8.00 grs.	16.00 grs.
Homatropine	0.50 gr.	1.50 grs.
Iridine	3.00 grs.	10.00 grs.
Pareirine hydrochlorate	8.00 grs.	30.00 grs.
Parthenine	3.00 grs.	15.00 grs.
Picrotoxine	0.10 gr.	0.33 gr.
Silver cyanide	0.08 gr.	0.20 gr.
Silver iodide	0.33 gr.	
Solanine	1.50 grs.	5.00 grs.
Tribromide of allyl	8 minims.	

—*National Druggist*, March 15, 1889.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE.

PER ANNUM, IN ADVANCE.....$5.00
SINGLE COPIES.....10 CENTS.

Subscription may begin at any time. The safest mode of remittance is by bank check or postal money order, drawn to the order of THE JOURNAL. When neither is accessible, remittances may be made at the risk of the publishers, by forwarding in REGISTERED letters.

Address
JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 68 WABASH AVE.,
CHICAGO, ILLINOIS.

All members of the Association should send their Annual *Dues* to the *Treasurer*, Richard J. Dunglison, M.D., Lock Box 1274, Philadelphia, Pa.

LONDON OFFICE, 57 AND 59 LUDGATE HILL.

SATURDAY, MARCH 30, 1889.

THE SENSIBILITY OF THE BLADDER.

In a communication on the "Sensibility of the Bladder in the Normal and Pathological State," made to the Académie des Sciences, on March 14, PROFESSOR GUYON said that in the normal state the sensibility of the bladder is manifested only when the desire to micturate is felt. To determine under what physiological conditions this desire is produced was the object of some researches undertaken by him. These researches have led to the following conclusions: 1. In the physiological state the desire to urinate is felt only under the influence of tension of the vesical walls. 2. Contraction of the vesical muscle precedes immediately the manifestation of this desire, which is perceived only when this contraction is carried to a certain degree. 3. The desire to micturate does not depend upon the action of a sort of elective sensibility, having a special centre in a determined point of the mucous membrane of the neck or body of the bladder; this sensation is situated in all parts of the organ.

In the normal bladder, says Guyon, sensation or contact is *nil* or obtuse. There is no sensibility to liquids that are unirritating; for solid bodies sensation is obtuse. Whatever be the position of the subject of the experiment, and whatever the movements of the body, the contact of the urine is never perceived. The same is true of warm water, boric acid solutions, and of weak solutions of nitrate of silver that do not cause immediate irritation. The subject of the experiment is never aware of the injection into the bladder of a liquid at a temperature of about 18° C., but can distinguish between hot and cold fluids, and irritating fluids; the desire to urinate immediately succeeds this sensation. The interval separating the contact-sensation from the desire to urinate is proportional to the degree of the sensation. When a tepid liquid is injected to the degree of tension, the desire to urinate occurs. Supple instruments introduced into the bladder cause no sensation except in the urethra; nor do the extremities of bougies and sounds cause sensation in the bladder. Rigid instruments cause an obtuse sensation, which sometimes appears to be more pronounced near the neck, but does not cause desire to urinate. This desire is felt only secondarily, and is caused by repetition of the contact, sometimes by reason of its prolongation *in situ* or under stronger pressure—but especially on repetition, or by successive excitations. These experimental results are seen in practice. The normal bladder is indifferent or but slightly sensitive to contact. It invariably responds to tension by creating the desire to urinate. The bladder has not what may be called an anatomical capacity, but a physiological capacity—a capacity proportional to its sensibility—this capacity being variable, even in the normal state, and regulated by diverse conditions, physical or psychic. It is not the quantity of liquid that the surgeon introduces, but the reaction it determines that awakens the sensibility of the bladder. Anæsthesia shows the difference between contact-sensation and tension-sensation; under anæsthesia the first is abolished, but the latter remains.

It may be regarded as an established fact, says Guyon that tension is followed immediately by contraction, and this by the desire to urinate. A certain degree of tension may create the desire; but if the liquid be left in the bladder the desire ceases. A little more liquid may be injected now, when the desire again occurs, and again ceases. The surgeon may utilize this cessation of contraction to increase gradually the quantity of liquid introduced, if, as in a case of suprapubic cystotomy, he desires to distend the bladder.

It is a well-known that Küss and Duval are of the opinion that the desire to micturate is created by the flowing of a small quantity of urine into the deep portion of the urethra, and thier theory is generally accepted. Guyon claims that this portion of the urethra is insensible to the contact

of liquids. The first portion of this region, he says, is very sensitive; the second, or prostatic portion, is moderately sensitive to contact. Active pressure upon the membranous portion, repeated contacts, and faradization, when made from without inwards or *vice versa*, never create the desire to urinate; at the entrance to the bladder these maneuvres create the desire in some subjects. But this desire, always transient, becomes definite only when an instrument, carried into the bladder, is brought into repeated contact with the body of the organ. Hence, says Guyon, it is excitation of the urethral face and of the ring of the neck, not of its vesical face that causes a *transient* desire. Pressure *en masse* of the region of the neck produces the same effect. The neck of the bladder and the adjoining portion of the urethra have then, in the physiological state, less sensibility than the body of the bladder; and they are insensible to the contact of liquids.

In the pathological state the sensibility of the bladder is characterized by exalted sensitiveness to tension, and by more or less acuteness of sensibility to contact. Lively sensibility to contact, says Guyon, constitutes a pathological state. For diagnostic purposes it is very important to determine the degree and localizations of this morbid sensibility. The effects of distension in the physiological state are redoubled in the pathological state. The pain caused by exaggerated tension is hurtful to the bladder in the pathological state, and exercises a reflex action on the kidneys. In the pathological state, therefore, all tension and distension of the bladder should be carefully avoided. In painful states of the bladder Guyon has substituted instillations for injections, when it is necessary to use a moderately irritating liquid. He believes that in operations the object of which is to combat a grave painful state, section of the bladder itself is preferable to section of its neck, since he believes that in painful states of the bladder what has been supposed to be a contraction of the neck is really a contraction of the body of the organ.

FAITH-CURE IN THE COURTS.—At a recent trial of two "faith-cure apostles" in Sioux City, Iowa, for practicing medicine without a license, the Judge instructed the jury to find for the defendants, since under the laws of Iowa it was no crime for a person to pray for his afflicted neighbor.

THE UNION OF MEDICAL SCHOOL AND UNIVERSITY.

"Some of the advantages of the Union of Medical School and University" was the subject of an address delivered at Yale University last June, by Professor WILLIAM H. WELCH, of Johns Hopkins University. It is a hopeful and gratifying circumstance, says Dr. Welch, that within the last few years universities in this country and in England have shown an awakened and enlightened interest in the advancement of medical science and the promotion of higher medical education. Among the most notable evidences of this interest is the recent organization at the great universities of Cambridge and of Oxford of medical departments, not as detached schools, but as integral and coördinate parts of the universities. The vivifying influence of this intimate connection has been made manifest by zeal for research, equipment of laboratories, improved methods of instruction, and a more orderly and systematic scheme of study.

In Dr. Welch's opinion the union of the medical school and university will be a step in the direction of higher medical education. "The assumption by independent schools of medicine of the power of granting the doctor's degree, without any control from a university or from the State, is a main reason in this country for the lack of uniformity in medical education, for the enormous number of medical schools beyond all necessities of the community, for the ease with which medical degrees can be obtained, and for the consequent degradation in the significance and the value of the degree of doctor of medicine."

Of the 92 regular medical schools in the United States, 48 are medical departments of or affiliated with universities or academic colleges, and 44 are without such connection. Of the 13 Canadian schools, 12 have such connections, in all cases with universities, not colleges, and one is independent. Of the 48 American schools connected with academic schools, in about half the number of cases the academic connections are schools scarcely known beyond the boundaries of the States in which they are situated. In about the same number of cases, probably more, the medical colleges have such connection in name only, being in no way controlled by the regents of the universities or the trustees of the colleges. In one case a "university" has two separate and

distinct medical departments. The fertile American soil seems to be as productive of "universities" and "colleges" as of potatoes, and too often the greater attention is given to the proper planting and growth of the last-named.

While almost 50 per cent. of American medical schools have no academic connection, more than 90 per cent. of the Canadian schools have university connections; and the Canadian schools, as a class, rank with the less than half a dozen first-class American schools. Says Dr. Welch: "If we attempted to analyze the cause of German prominence in medical education, we should find that many causes combine to produce this result, but certainly not the least of these is the fact that medicine in Germany is taught only as a department in a university. Independent medical schools do not exist there. Something more than a feeling of piety for old forms has preserved the historic association of the medical with the other faculties. There is a conviction that the highest interests of medical education are best subserved by this association." Naturally we cannot expect to transfer the German university methods bodily to our soil, nor is such transference essential to a higher system of medical education. The school of physiology developed at Cambridge under Michael Foster is clearly traceable to academic influences, says Dr. Welch. It is of course possible that such results are attainable under favorable conditions, by independent medical schools; "but experience demonstrates that the highest development of medical education is attained to-day as it has been in the past, by the university system."

The mere formal connection of a medical school with a university is insufficient to bring about the results of which we speak. "There must be a union in spirit as well as in name. The influences of university methods and ideas must manifest themselves in the medical department, sympathetic relations must exist with other departments through the connecting link of all, the philosophical faculty, and the coöperation must be obtained of those physical and natural sciences, physics, chemistry, zoology, comparative anatomy, and botany, knowledge of which is essential to a complete medical education, and to scientific research in every branch of medicine."

What are the specific advantages that belong to the university system of medical education? The discussion of this question we must defer until a later date.

PROGRESS OF HIGHER GENERAL EDUCATION FOR MEDICAL MEN.

When, in 1859, the Chicago Medical College—Medical Department of the Northwestern University, was organized on the basis of three years of graded medical studies and a moderate standard of preliminary education for admission, it was comparatively rare to find, in the classes attending the medical colleges, especially in the newer States, regular graduates from universities, colleges or scientific schools.

The change that has taken place in this regard was well illustrated by an item in the public Commencement exercises of the above-named College on the 26th inst. Dr. Ephraim Ingals, one of the most enlightened and liberal members of the profession in this city not connected with any medical college, had instituted a prize of $100, to be awarded the member of the graduating class who should attain the highest average standing in the three departments of literature, science, and medicine; the same to be determined by a competitive examination under the direction of a committee of the Faculty. A prize of $50 was also offered by Dr. G. Wheeler Jones, of Danville, Ill., to the member of the class who should attain the next highest position as shown by the same examination. The Dean of the Faculty, in announcing the decision of the committee awarding these prizes and in presenting the graduating class to the President of the University, took occasion to remark that not only were all those who entered the prize contest graduates of literary colleges of high standing, but 18, or 40 per cent. of the whole graduating class, had been admitted to the medical college on diplomas from literary and scientific colleges, and of the remaining twenty-eight, all had pursued academic or collegiate studies from one to five years after leaving the ordinary public schools and before commencing medical studies. We hope the time will soon come when no person will be permitted to enter upon the study of medicine without presenting proof of a good literary and scientific education.

REGULATING THE SALE OF PROPRIETARY MEDICINES.

A bill has been introduced into the Ohio Legislature to prohibit the manufacture and sale of proprietary medicines in the State. Should the bill pass a fine of from $500 to $5,000 will be laid on

the manufacturer of such medicines, and their sale will be punished by a fine of from $100 to $300. In several other States than Ohio the question of the manufacture and sale of proprietary medicines is being agitated, and efforts being made to lessen the evils that undoubtedly arise from the indiscreet and indiscriminate use of the proprietary compounds that take up the larger part of the shelf-room in our drug-stores. Whether the bill before the Ohio Legislature is Constitutional or not we will not pretend to say. A less drastic measure, and one that, it appears, would meet with less opposition, would be the adoption of the French method of dealing with this question. There a "secret remedy" or proprietary medicine, before it is offered for sale, must be submitted to a Committee of the Académie de Médicine, which condemns the article, thus prohibiting its manufacture and sale, or approves of it and fixes the maximum price at which it may be sold. This Committee has the formula, and the method of preparation submitted to it, and the preparation is carefully investigated by an expert chemist. The New York *Commercial Advertiser* thinks that "if on every bottle of proprietary medicine offered for sale there should be a label giving a correct account of the substances contained in the compound, people would know what they were swallowing, and would swallow it at their own risk. The State has the right to require this, and the people could not quarrel with it." The State has undoubtedly the right to require this, but it is sheer nonsense to suppose that the people would then know what they were swallowing. And if people will swallow stuff in total ignorance of its composition, it is scarcely likely that what little knowledge they could gain from a label would exercise any influence.

EDITORIAL NOTES.

THE FORTIETH ANNUAL MEETING OF THE ASSOCIATION.—Both the preliminary programmes of many of the Sections already published and a recent letter from the Chairman of the Committee of Arrangements show that the preparations for the meeting at Newport are progressing in a most efficient and satisfactory manner. Not only the Rhode Island State Medical Society, but the profession in Boston and throughout the New England States are affording gratifying indications of a warm interest in the coming meeting.

INDIANA STATE MEDICAL SOCIETY.—The Secretary of this Society, Dr. E. S. Elder, of Indianapolis, requests us to call special attention to the fact that the next annual meeting of that Society will be held commencing on *Wednesday*, May 1, 1889, a wrong date having been previously given.

DEATH AFTER VACCINATION.—In the *British Medical Journal* of March 9, 1889, the following case is cited: On September 24th the Public Vaccinator at Billesdon Union, near Leicester, vaccinated a little girl with humanized lymph in two places on the left arm. On the seventh day he visited her, finding the vaccine pustule well developed at each point, but broken and the lymph running down the arm, with an areola of redness around each, three-quarters of an inch in width. The next day the areola had assumed a more distinctly erysipelatous character. From this time it spread rapidly with much swelling; the hands and feet became densely œdematous; cellular abscesses formed near the elbow and in the back, and death ensued on November 19th following.

The origin of the vaccine lymph used was readily traced by Dr. Ballard, and found to have been free from contamination with the infection of erysipelas, but the house in which the child lived and its surroundings were in a very filthy and unsanitary condition. To these local conditions, Dr. Ballard attributed the unfortunate result. The responsibility for the death, was, therefore, properly attributed to the neglect of duty on the part of the local Sanitary Board.

DR. JEROME COCHRAN, State Health Officer of Alabama, has written an open letter to the Birmingham *Age-Herald* on the subject of yellow-fever disinfection, and in regard to the bitter and ungenerous manner in which he was denounced when he said that one of his patients in Decatur, last year had died of yellow fever. Dr. Cochran says: "It is argued that Decatur ought to be disinfected as a matter of policy, to quiet the apprehension of the people and adjacent States. It is precisely this spirit of apprehension, and the spirit of panic that follows in its train, and which is mischievous beyond power of words to give expression to, that stands in need of rebuke. Let

the people be taught again a great lesson. Let them learn that all the artificial means of disinfection that have so far been employed against yellow fever have proved to be comparative failures, while the great disinfectant which Nature sends to our aid—the beneficent frost of our winters—has never been known to fail." It is a matter of great doubt whether sanitarians will agree with him that artificial means of disinfection against yellow fever have proved to be comparative failures. If frost alone is to be depended upon there seems to be no hope for Cuba.

DR. KEI OKAMI, of Japan, and DR. SUSAN LA FLESCHE, of Nebraska, are among the recent graduates of the Woman's Medical College of Pennsylvania. The former is the first Japanese woman, and the latter the first Indian woman to study medicine. Dr. La Flesche was an Indian girl, who learned the English language at a reservation school, and completed her studies at the Indian School at Hampton, Va.

MEDICAL LEGISLATION.—Oregon and Montana Territory now have acts regulating the practice of medicine. The Oregon act, which is now a law, requires all practitioners to "possess a diploma of graduation, or a certificate from the board of medical examiners," according to the Albany (Oregon) *Herald*. In Montana, says the Bozeman *Chronicle*, the bill "requires the examination of all physicians in the Territory." We have no more explicit information than the above.

MEDICAL LEGISLATION IN TENNESSEE.—We learn that there is before the Legislature a bill to regulate the practice of medicine in the State of Tennessee. The bill is very stringent in its provisions, and traveling doctors or peddlers of drug nostrums or patent medicines are required by its terms to pay $100 a month to the State. It provides for a State Board of Medical Examiners, who shall issue certificates or licenses to practice, either upon examination or upon proof that the applicant was a practicing physician prior to the passage of the act. These certificates shall be recorded in the office of the county court clerk. Practicing medicine without such a certificate shall subject the offender to a fine of $100 for the first offense, and $200 for each subsequent offense. The same penalty is attached to "any itinerent vendor of any drug, nostrum, ointment or application of any kind intended for the treatment of disease or injury, or who may by writing, printing or other methods, profess to cure or treat disease or deformity by any drug, nostrum, manipulation or other expedient," who does not pay to the Board of Examiners $100 a month for such privileges.

THE LATE OUTBREAK OF SMALL-POX IN MINNEAPOLIS, it appears, was very summarily and successfully dealt with by Health Officer Kilvington. As soon as a case was announced, a consultation was called to determine if the disease was small-pox. That being settled, the patient was removed to the quarantine hospital for treatment. The house where he lived was quarantined, and all the people directly exposed were confined in it. Dr. Kilvington's assistants then began to look up all people indirectly exposed, and vaccinated them. Quarantine houses had guards stationed about them, who allowed no one to go in or out during the season of quarantine. The quarantine people were vaccinated, and during the time until it could be determined whether the vaccination would take, they were supplied with food. When the vaccination took, the person under quarantine was bathed, given new clothing in place of the old, which was burned, and he was then discharged. When a house had been emptied of people under quarantine, the bedding and curtains were burned, sulphur burned in all the rooms, and the walls sprayed with corrosive sublimate. None of the inspectors or guards were allowed to enter any of the houses under quarantine, when there was danger, and the doctors that did the vaccinating saturated their clothing with the corrosive sublimate before and after entering a house where there had been small-pox. The clothing and bedding were either paid for at a reasonable price by the board of health, or were replaced by new articles. In one of the houses quarantined, there were 31 laboring men, who were inclined to object to the rules of quarantine. One escaped, but he was taken back when found, and a guard, with a rifle and instructions to shoot, should he attempt to escape, was put over him. Since January 13, 6,000 people have been vaccinated, and the schools, public and private, have been systematically visited, and unvaccinated children vaccinated.

FATAL RESULTS FROM SANTONIN.—The newspapers contain the report of two cases of death from santonin, given as a vermifuge to a little boy aged 3 and a girl aged 5 years. It appears that both deaths occurred within a few hours after the medicine was given. Santonin was administered also to a girl of 9 years, of the same family, and she was made dangerously ill.

REGISTRATION OF BIRTHS.—DR. C. A. LINDSLEY, of New Haven, Secretary of the Connecticut State Board of Health, and Superintendent of Registration of Vital Statistics, has sent circulars to the physicians in the State calling attention to the law in regard to the prompt return of births, and to the fine provided for failure to make such returns. He has also sent the circular to every registrar in the State, with a request to make note of physicians neglecting to make returns. It is said that the law is disregarded to a disgraceful extent, and the State Board of Health proposes to make an effort hereafter to secure the monthly returns called for by the law. Every physician recognizing the importance of having birth statistics accurately recorded, should cheerfully and promptly comply with the law.

ASSOCIATION NEWS.

American Medical Association. Fortieth Annual Meeting.

To be held in Newport, R. I., June 25, 26, 27 and 28, 1889.

SECTION ON OPHTHALMOLOGY.

Papers have been positively promised by the following members:

Dr. Robert Tilley, Chicago, Ill.
Dr. E. J. Gardiner, Chicago, Ill.
Dr. S. S. Bishop, Chicago, Ill.
Dr. F. C. Hotz, Chicago, Ill.
Dr. H. Gifford, Omaha, Neb.
Dr. J. F. Fulton, St. Paul, Minn.
Dr. J. J. Chisolm, Baltimore, Md.
Dr. J. L. Thompson, Indianapolis, Ind.
Dr. A. E. Prince, Jacksonville, Ill.
Dr. LeRoy Dibble, Kansas City, Mo.
Dr. J. H. Thompson, Kansas City, Mo.
Dr. A. R. Baker, Cleveland, Ohio.
Dr. Dudley S. Reynolds, Louisville, Ky.
Dr. Robert Sattler, Cincinnati, Ohio.
Dr. C. M. Hobby, Iowa City, Iowa.
Dr. J. W. Wright, Columbus, Ohio.
Dr. F. B. Tiffany, Kansas City, Mo.
Dr. R. L. Thompson, St. Louis, Mo.
Dr. P. D. Keyser, Philadelphia, Pa.
Dr. W. G. Edwards, Nashville, Tenn.
Dr. A. W. Calhoun, Atlanta, Ga.
Dr. H. W. Williams, Boston, Mass.

Some of the above named authors have given in the titles of their respective papers. Those who have not should do so at once that the title of each paper may be published in connection with the name of its author.

Shall we have a short-hand reporter to take down all discussions? Or will members who discuss papers take the pains afterwards to write out what they may have said? Discussions ought to be published in connection with every paper, so that the different views entertained upon the subject of which it treats may be presented to the reader. Will *all* who are members of this Section please write the President or Secretary their wish on this point?

G. E. FROTHINGHAM, President,
Ann Arbor, Mich.
G. C. SAVAGE, Secretary,
Nashville, Tenn.

PRELIMINARY PROGRAMME OF THE SECTION ON MEDICAL JURISPRUDENCE.

All members desiring to contribute papers to this Section are requested to correspond with its officers.

First Day.—"History of Medical Jurisprudence," by Judge Amos G. Hull, of New York.

Second Day.—"Tests of Insanity," by H. N. Moyer, M.D., of Chicago.

"Monomania," by Clark Bell, Esq., of New York.

"Legal Decisions on Insanity"—Chairman's Address, by Jas. G. Kiernan, M.D., Chicago.

"Massachusetts Insanity Laws," by T. W. Fisher, M.D., of Boston.

"Illinois Insanity Laws," by Harriet C. B. Alexander, M.D., of Chicago.

Third Day.—"Legal Aspects of Inebriety," by T. L. Wright, M.D., of Bellefontaine, Ohio.

"Inebriate Criminals," by T. D. Crothers, M.D., of Hartford, Conn.

"Social Aspects of Alcoholism," by E. C. Spitzka, M.D., of New York.

Fourth Day.—"Spinal Concussion," by S. V. Clevenger, M.D., of Chicago.

JAS. G. KIERNAN, M.D., Chairman,
Central Music Hall, Chicago.
S. C. EVANS, M.D., Sec'y., Baltimore, Md.

The names and addresses of Section Officers and other officers of the Association are printed on advertising page 25.

Special Attention is called to the following Rules of the Association:

It shall be the duty of every member of the Association who proposes to present a paper or

report to any one of the Sections, to forward either the paper, or a *title* indicative of its contents, and its *length*, to the Chairman of the Committee of Arrangements at least one month before the annual meeting at which the paper or report is to be read. It shall also be the duty of the Chairman and Secretary of each Section to communicate the same information to the Chairman of the Committee of Arrangements concerning such papers and reports as may come into their possession or knowledge for their respective Sections, the same length of time before the annual meeting. And the Committee of Arrangements shall determine the order of reading or presentation of all such papers, and announce the same in the form of a programme for the use of all members attending the annual meeting. Such programme shall also contain the rules specified in the By-laws and Ordinances concerning the consideration and disposal of all papers in the Sections.

No report or other paper shall be entitled to publication in the volume for the year in which it shall be presented to the Association, unless it be placed in the hands of the Committee of Publication on or before the first day of July. It must also be so prepared as to require no material alteration or addition at the hands of its author.

Every paper or address received by this Association, or by a Section, and ordered to be published, and all reports of Committees, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association.

ORDINANCES.

Resolved, That the several Sections of this Association be requested, in the future, to refer no papers or reports to the Committee of Publication, except such as can be fairly classed under one of the three following heads, namely: 1. Such as may contain and establish *positively* new facts, modes of practice, or principles of real value. 2. Such as may contain the results of well-devised original experimental researches. 3. Such as present so complete a review of the facts on any particular subject as to enable the writer to deduce therefrom legitimate conclusions of importance.

Resolved, That the several Sections be requested, in the future, to refer all such papers as may be presented to them for examination by this Association, that contain matter of more or less value, and yet cannot be fairly ranked under either of the heads mentioned in the foregoing resolution, back to their authors with the recommendation that they be published in such regular medical periodicals as said authors may select, with the privilege of placing at the head of such papers, "Read to the Section of the American Medical Association on the day of 18 ." (Vide *Transactions*, vol. xvi, p. 40.)

Resolved, That no report or other paper shall be presented to this Association unless it be so prepared that it can be put at once into the hands of the Permanent Secretary, to be transmitted to the Committee of Publication. (Vide *Transactions*, vol xvii, p. 27.)

SOCIETY PROCEEDINGS.

Obstetrical Society of Philadelphia.

Stated Meeting, Thursday, February 7, 1889.

THEOPHILUS PARVIN, M.D., IN THE CHAIR.

DR. LONGAKER reported a case of

PLACENTA PRÆVIA.

The features of interest in this case are: *a*. Hæmorrhage at the seventh month in P. P. Lateralis. *b*. The patient was in a septic condition when first seen, a week after commencement of hæmorrhage. She was also very anæmic. *c*. Turning by the bi-polar method was at once done, and a living seven months' fœtus was born. *d*. The patient made an excellent recovery, and was sitting up in two weeks. *e*. The surface of the placenta showed traces of fatty degeneration. It contained a clot the size of a walnut and several days old. Placenta prævia occurred at her last confinement, three years ago, and she came near losing her life from hæmorrhage both before and during labor.

Case of Diseased Placenta, Anasarca of Fœtus and Hydramnion.—Mrs. Z., æt. 28. Second ipara at seventh month of pregnancy. Her first child lived but a short time. The amniotive fluid was in excess, and child and placenta weighed 5¾ pounds. About one-third of the placenta was the seat of a well-marked change. There are foci, cheesy in the centre, gradually passing into apparently healthy tissue. These were more or less continued, involving a *V*-shaped segment. The abdomen of the child was so distended as to cause a slight obstacle to its delivery. Œdema of the extremities was slight. Both the pleura and pericardium were distended. The greater part of both lungs was solid, and on section a purulent fluid exuded from the cut surface. The child's extremities were rigid and flexed. It had been dead but a short time. Careful auscultation had, however, failed to detect fœtal heart sounds during labor.

DR. HOFFMAN reported a case of

PYOSALPINX.

I shall go into the history of this case with rather more attention to detail than would be

warranted, were it not for some features of previous history and treatment, which render it in some respects more than ordinarily instructive.

Mrs. G., æt. 28, came to me for examination in August, 1888. Her history at the time was unsatisfactory, giving simply record of a discharge for a long while, and great pelvic pain, especially on the right side. A miscarriage was admitted. Examination showed a painful mass, bound down to the right cornu uteri, so tender that exact mapping out was impossible. I doubt, however, whether even under an anæsthetic an accurate diagnosis could have been made of the condition as revealed by operation, owing to the involvement of intestine. Intestinal adhesions always increase the size of ovarian and tubal tumor, rendering the decision of absolute extent impossible. The left side also was evidently involved, but was not so painful as the right. I made no great effort to determine the extent or nature of this involvement, inasmuch as her condition was evidently one for operation, as I told her, saying at the same time that treatment would be entirely useless. She left my office crying and I saw no more of her until two days before operation, December 18, 1888. I then ascertained that after seeing me she had gone to four other physicians, one whose diagnosis was uterine displacement, and whose treatment was the introduction of a pessary, strangely enough with the result of apparent relief. She then visited the clinic of the Woman's Hospital, and was comforted with the assurance that there was nothing the matter with her and that she should go home and have a baby. She received like advice at the University. An up-town specialist, into whose hospital she afterwards went, with the intention of operation "for a ruptured blood-vessel," the then diagnosis, told her there was no necessity for operation, advising her that she was wise not to have submitted to it at my hands, promising her at the same time that she should have a baby, and to promote this end, the uterus was curetted. Time wearing on, she again visited her last adviser, who now made the diagnosis of a ruptured blood-vessel, and advised operation for its "tying." At this juncture she again fell into my hands, much reduced from excessive hæmorrhage for three weeks. I did not examine her, but urged immediate operation, to which she consented. Two days later abdominal section was done. Assisted by Dr. J. Price, the right side was first explored and the ovary and tube found everywhere densely adherent. Enucleation was accomplished with much difficulty, and when attempt was made to apply the ligature, the tissues were found so rotten that the blood-vessels alone withstood the tension of the silk. The right cornu uteri was so involved that it was simply a mass of abscess tissue, and had to be curetted in order to free it from the necrosed portions. The bleeding was now so profuse that the application of a new ligature was necessary. The second ligature was wholly about uterine tissue. The left side was then examined and found even more extensively involved than the right, but without the presence of pus. The adhesions were more dense, but the tissues not being necrosed, there was no difficulty in obtaining a good pedicle. The involvement of the intestines was so great that I fully expected a fæcal fistula to result, in spite of careful suturing. The right tube contained pure pus. A drainage-tube was introduced and kept in the incision a little more than a week. The only complication was severe inflammation of the bladder, and phlebitis of left internal saphenous vein. The patient is at present moving about her room.

The history of her trouble, since obtained, is interesting. She was married at 16. Six weeks after her marriage her husband deserted her. Her baby lived seven months, going blind some time before its death, having sores and becoming very emaciated. At this time she began to have a bad discharge, which inflamed her private parts, which were also much swollen. Had great pain on urination. She did not have intercourse for twelve months after the birth of her baby. She then contracted an alliance with another man, and afterwards within three years had two miscarriages, and a still birth at eight months. Her hair has fallen out, but aside from this she has had no other sign of syphilis. The question here arises, what was the origin of the pelvic trouble? Was it gonorrhœa, syphilis, abortion, or the after-effects of labor? That there are chances for believing, according to the various aspects of the case, that perhaps one, then the other of all these agencies, entered into the causation of the disease, will, I believe, be not disputed. Whether or not it is so conceded, matters very little, however, so far as this case is concerned. That all these factors may bring all the various forms of pelvic disease cannot be rationally disputed. That we can dogmatically affirm that any pelvic lesion is brought about by any one of these causes, with the exception of gonorrhœa, as proved by the presence of the gonococcus, is not to be for a moment entertained. The fact is, we can have the symptoms of pyosalpinx simulated in all its essentials by an entirely different condition, to-wit: tubercular disease of the appendages. To consider the relative frequency of each of these factors in the production of pelvic disease, it is not my purpose, but it requires more than the dogmatic assertion of any operator to prove that this, that or the other cause is always at the bottom of the lesion. But while the etiology of the trouble may be obscure, in a well-defined lesion like the one under observation, the diagnosis ought, in most instances, to be made, or if it cannot, the question concerning it should be gone over, chances for error discussed, and once for all have

it confessed that the subject of pus-tubes and ovaries is not too hackneyed for consideration before a Society such as this. We read of the infallible bi-manual examination, which is able to pick up a Fallopian tube or distinguish varicose veins in the broad ligament, and then suddenly are confronted by failures such as I have here recorded. The fact stands out that the diagnosis insisted upon, by the men who are accustomed to "claim everything," is a myth, and as Mr. Tait says, fit only for library papers. It is incredible that the diagnostician who can recognize, map out and differentiate the Fallopian tubes, should fail to recognize a mass the size of a small fist. Let us by all means have diagnosis, but let it be *diagnosis*, not myth. In this case the diagnosis, promises and treatment well nigh lost the woman her life. She wanted a baby and she was promised one. She nursed the delusion for three months. Promises may hold patients, they do not work cures, nor save reputable medicine the slur and suspicion of quackery. I believe in the present case that the curetting was directly responsible for the involvement of the uterine tissues. In the presence of tubal disease there is no excuse or palliation for the use of the curette. I believe that the so-called operation of "dilating and scraping" is responsible for much tubal and ovarian trouble that would otherwise remain quiescent. I have now a case under observation where this procedure was resorted to, without relief; then electricity was tried, and to-day the patient is worse than ever, with operation her only relief.

Dr. Horatio R. Bigelow read, through the Secretary, a paper on

APOSTOLI'S PLACE IN GYNECOLOGY.

After some complimentary remarks on Apostoli himself Dr. Bigelow went on to discuss the armamentarium necessary for carrying out the electrical treatment. He thought it necessary to have a galvanic battery, a faradic battery, a collector, a galvanometer, intra-uterine electrodes for both currents, and one for carrying both the positive and negative of the induced current within the uterus; bulbous charcoal-pointed electrodes of various sizes for galvano-caustic applications, intra-uterine platinum electrodes, and large bulbous vaginal and rectal electrodes. The belly-plate could be made of potter's clay, in which the metal plate could be buried, or better is the plate devised by Martin, of Chicago. A good galvanic battery should have a slight chemical action and great constancy. The Léclanché cells or those of Daniell he thought the best. With 36 Léclanché cells, without a rheostat, a strength of from 300 to 350 milliampères can be gotten. He thought that the collector was invaluable, and that to measure the dosage exactly was an absolute prerequisite of success. The best galvanometer was that made by Gaiffe. The best faradic battery that of Gaiffe, with a chloride of silver pill, and the induced currents of high tension from the long thin wire was the one to be generally used within the uterus.

"The induced current penetrates the tissue profoundly by reason of its high tension, but, contrary to physical laws, the continuous current of low tension has a longer and more profound action. We have proved the diffusion of the electric currents, and that the galvanic current propels itself through organic tissues, its influence being felt at remote points, the current *never remains limited between the two poles*" (Ominus). "If we now consider the difference that exists between continuous and induced currents during their constant passage we find that it is not difficult to distinguish between them, as the line of demarcation is clear. The induced current acts for an exceedingly short time during its passage. It produces at each instant of passage a greater or less excitation and causes molecular shock. The induced current acts mechanically as an excitant, but the continuous current penetrates more gradually the tissues, but more profoundly, acting chemically in such a way as to produce molecular orientation and chemical combination" (Ominus). The induced current traversing the liquid, semi-liquid, or solid substances that go to form the human body, produces no chemical action whatever, simply a mechanical molecular disturbance. The continuous current, however, not only produces its chemical action at the poles, but this molecular disintegration and orientation is propagated throughout the zone between the poles. Just what the galvano-caustic action is that dissipates a tumor is not yet known—whether it coagulates the albuminoids or creates interstitial inflammation, he does not know. *It does reduce the tumor* and it remains for us to find out the *why?* He believed that time would demonstrate a change of *cell life* in addition to the purely chemical action, which takes place around the poles. In Apostoli's clinic the induced current is not often used. It has a wondrous effect, however, upon the ovarian pain in hysterical women. Dr. B. has now seen 20 cases of this kind and every woman received immediate relief after a séance of ten to fifteen minutes. He has seen a large number of bleeding fibroids, but has, as yet, to see one that failed to respond immediately to the continuous current, the positive pole being within the uterus. Apostoli often carries the current up to 350 milliampères without any discomfort to the patient. It is most important that every part of the lining membrane of the uterus should be treated, and every hæmorrhage, no matter how severe it may be will resist. Dr. B. affirmed that the treatment would very appreciably diminish the size of fibroids and at times entirely dissipate them. He quoted cases to prove this point. Punctures were

made into the tumors to the depth of from 1–3 centimetres, with a lance-pointed steel needle, the galvano-negative caustic being used, usually. Everything was religiously clean and antiseptic. None of the patients had any bad symptoms. He affirms that Apostoli's method arrests hæmorrhage, diminishes size, relieves pain and improves nutrition, without endangering life, better and more surely than any other method, and asks, why then resort to Tait's operation of excision of the appendages? The catarrhal forms of salpingitis yield kindly to the simple action of the continuous current, one pole in the uterus. Dr. B. is not yet ready to offer any decided opinion in regard to pyo-salpingitis. He however cited several cases where negative punctures of the tube relieved or cured the cases. In metritis the galvanic or faradic current should be used as one or the other agrees with the patient. Apostoli says that "this treatment applied according to his double or bi-polar method is an excellent and sometimes sovereign remedy in certain cases (recent subinvolution, chronic metritis in its first stage), inefficacious or at least very insufficient in others (such as chronic metritis in its latter stages), and endometritis in any form." In endometritis the continuous current and the positive pole within the uterus are used. He cited some cases of fungoid endo-metritis which had been cured. Dr. Apostoli faradized every woman, even when under an acute attack, who was suffering from peri-uterine inflammations, observing certain rules which he has laid down. In the sub-acute stage he uses, first, bi-uterine faradization, with a current of tension when the inflammation begins to give way he used the intra-uterine continuous current, beginning first with the positive pole and following with the negative as as soon as he is sure the patient can bear it. In the chronic stage use the continuous current and galvano-puncture (negative), making the puncture in the diseased part itself. In old cases of perimetritis, with much tenderness around the utero-sacral ligaments, much relief may be obtained by the vaginal electrode in the posterior fornix, while the negative pole is in the abdomen, using the induced current of high tension.

DR. JOSEPH PRICE reported

A YEAR'S WORK IN A MATERNITY HOSPITAL.

In making this report I desire briefly to call attention to the amount of work done, the routine treatment of patients, and a few alterations which have taken place in the building. During the year 1888 there were 184 deliveries in the Retreat. Of these patients 69 were primaparas. There were 186 children born, including two sets of twins, 9 of these infants were stillborn, 102 were males, 84 were females. There were 13 forceps deliveries. Labor was induced in 2 cases in the eighth month. In 1 case a contracted pelvis and in one the presence of a large uterine tumor. There have been no deaths of mothers in the Retreat for a period of nearly five years, furnishing a series of 540 deliveries without a death, the last death being from puerperal convulsions in a patient suffering from chronic Bright's disease, and who had had convulsions in five previous labors. Since this death there has not been a case of puerperal septicæmia in the institution. The great success attending the work of this Maternity is due to the strict enforcement of the law of cleanliness. Everything and everybody in the house is clean and jealously kept so. This system was enforced by Dr. Goodell, and has been carried out on the lines laid down by him. The routine treatment of patients is as follows: the patient on entering the house is given a hot soap bath, dressed in clean underclothing, and given a clean bed in the waiting ward. If necessary, a laxative is given and the bowels kept soluble during her waiting period. Thereafter, until her confinement, she is obliged to take at least two hot soap baths per week and to wear clean clothes. She is allowed to do such light work about the house as the physician may deem advisable, and is encouraged to take as much open-air exercise as circumstances will permit. Every effort is made by the officers and employés of the institution to make it as cheerful and homelike as possible. When ready for the delivery room the patient is again given a hot soap bath and an enema and a vaginal injection of 1 to 2000 bichloride of mercury solution. She is clothed in a clean nightrobe and drawers and placed upon a new clean delivery bed. Scrupulous cleanliness is observed in all manipulations of the patient, and after delivery a second vaginal injection is given, and a vaginal suppository of iodoform is introduced. The patient's person is carefully cleaned and all soiled clothing removed, the binder applied, a clean set of night clothes put on and the patient placed in a new clean bed in the ward. All of the soiled articles are immediately removed from the delivery room and a new bed made up for the next patient. The patients in the ward are carefully observed by the nurses, but no unnecessary handling or interference indulged in. The patients remain in the ward until they are able to be up, when they are removed to the convalescent ward. As the ward is emptied, the beds are burned and all the bedding most carefully cleansed. No soiled linen (as draw-sheets, diapers, napkins or other articles of clothing) is allowed to remain in the ward, but when soiled is immediately placed in a covered receptacle and removed from the ward and building. No sponges, wash-rags or absorbent cotton are used in the house. Corrosive jute supplies the place of these articles, being clean, soft, remarkably absorbent and cheap; it is destroyed immediately after use. The pads used to absorb

the lochia are also composed of jute and are likewise destroyed after use. The beds in the wards are of new straw. All discharges from the delivery room are immediately burned. All bedding soiled beyond cleansing or contaminated by purulent or specific discharges is likewise burned. In short, every effort is made to keep the house perfectly pure and sweet. The arrangement of the house permits of rotation in the use of the wards, so that a ward, once emptied, is not again used until three others have been filled. In the meantime it is most carefully and scrupulously cleaned and thrown open to the atmosphere. A similar system is pursued in the convalescent wards and delivery room. A few alterations in the building have very markedly increased the effectiveness of the institution and the comfort of its inmates. In the first place, the bath-room and water-closets have been removed from the building proper and placed in the towers in the rear. The plumbing is as near perfect as modern sanitary science can make it. The verandas have been enclosed in glass, forming large, light, airy corridors about the rear of the building, and furnishing a distinct circulating atmosphere between the house proper and the wards and the water-closets. The ventilation of the entire building is simply perfect. The capacity of the house at present is about fifty patients per month, and, when a few contemplated changes are made, the capacity will be doubled and the institution rendered as nearly an ideal maternity hospital as is practicable.

Dr. Wm. Goodell said it had always been a matter of great regret to him that he did not adopt this system a year or a year and a half before he did. He supposed it was partly due to the conservatism of old age and partly to a series of some forty deaths from bichl. poisoning he had collected. Tarnier's reports of the results following the use of this agent so impressed him, that he was led to make the change. Before he adopted the system which has just been detailed by Dr. Price, he had once as many as five deaths in about 150 cases, four of these due to septicæmia. Latterly hardly a year would elapse without the occurrence of one or two deaths. When he first started everything about the institution was new and clean, and for several years he had the best record of any maternity hospital in the world. After the building and articles had become old, deaths began to occur. He tried carbolic acid, but it proved of little value. After beginning the use of corrosive sublimate injections, iodoform suppositories and antiseptic pads, he did not have a death from septicæmia. The only death was one from Bright's disease of the kidneys. During this time he had been consulted perhaps a dozen times in the course of a year to see women dying from puerperal septicæmia. He thought that, in private practice, it would not be needful to follow out so strictly the details of the method as it is practiced at the Preston Retreat. For instance, the antiseptic pad and the iodoform suppositories might be done away with. He believed, however, that every practitioner should syringe out the vagina both before the birth of the child and after complete delivery, with a bichloride solution of 1–2,000. The hands should also be disinfected. He was called in consultation by a physician in the country who had had four or five deaths from sepsis in a short time. I found he been treating a case of phlegmonous erysipelas. He knew of another physician who had lost, he thought, seven cases—certainly five, from dressing a sloughing case of erysipelas. Antiseptic measures would probably have saved all these cases.

Dr. Henry Leaman would call the attention of those who have the opportunity of observing the physiological processes of labor to one point, viz.: presentation. It is very difficult to accurately determine the presentation, particularly of the face, brow, and posterior presentations. These observations should be verified by examination of the abdomen previous to labor and the location of the fœtal heart sounds. They should also be confirmed by observation of the position of the head in the act of delivery. A mistake is readily made in posterior presentation. Posterior presentations are, he thinks, more common than we are in the habit of considering them. His object in speaking was to say that every case of labor was a case for the minutest observation. There was another point which he thought should be observed, that was the hour of the day at which labor occurs. There is, he thought, probably some connection between arterial pressure and the time of delivery. In recording the hour there would be an allowance to be observed in cases where the forceps were used. There was another point not mentioned, and that was the position of the succedaneum and its extent. These have to do with the natural process of labor and aid in determining the presentation.

Dr. J. Price said he was as anxious about a labor as he was about a section, when he read reports of maternity hospitals with a mortality of from 2 to 27 per cent. This troubled him not a little now that he controlled a large maternity hospital, one in which Dr. Goodell had left a record of 275 cases without a death. He sees a labor case as frequently as he does a drainage after abdominal section. When this hospital was new, Dr. Goodell had a run of 250 cases without a death from any cause. This was the longest run of any institution at that time. After this deaths began to occur. Later he adopted the gospel of cleanliness, and with what results he has just told you; the results are now precisely the same as he left them. In regard to Dr. Hirst's question as to whether the same results might not be obtained by simpler methods, Dr. Price said

that they did not differ much in regard to the use of solutions and that portion of the treatment. The toilet of the house was perhaps just as systematically carried out at the Philadelphia Hospital as at other institutions. The pad which he had shown would hold a pint of fluid. It saved an immense amount of laundry work. It was now coming into use as a menstrual pad and was very convenient for ladies traveling. In private practice the mortality was greater among the rich than the poor. Among the poor he had had 700 deliveries without a death. He thought the difference was in the water-closets which the better classes had in their houses. The mortality throughout the country was large. In a small town in Ohio, with a high elevation and beautifully located, he had recently known of two deaths from septicæmia. Last summer he had been called to see puerperal cases nine times, and all died.

Gynæcological Society of Boston.

Annual Meeting, Thursday, January 10, 1889.

THE PRESIDENT, HORACE C. WHITE, M.D., IN THE CHAIR.

Dr. John H. Mackie, of New Bedford, was elected to Corresponding Membership.

PATHOLOGICAL SPECIMENS.

DR. A. L. NORRIS presented a *tumor of the breast*, which he had removed from a woman, æt. 53 years. It had been three months forming, was extra-mammary, and of the size of a goose egg. Blood had oozed from the nipple, which contained broken-down blood-cells and cancer-cells. The axillary glands were not involved. The entire mass was removed. It was a schirrus which Dr. N. had never before seen as extra-mammary. The entire gland was also removed.

DR. F. L. BURT reported a case of *fibroid complicated with hydro-salpinx*, and exhibited the specimens. The patient had been under treatment about a year. There had been troublesome hæmorrhages. Laparotomy was performed for the removal of the diseased tube and ovary, and for hastening the menopause. Glass drainage tubes were used. The patient made a good recovery.

DR. E. C. KELLER reported a case which had been under observation since last August. The patient had been treated for localized peritonitis. Severe pain at first was one of the leading features of the case. On the 27th of December the patient had a severe attack of flooding, was blanched and fainted. On January 3, laparotomy was performed. There was a cyst near the left broad ligament. The ovary of that side was filled with blood. The hæmorrhage was from the Fallopian tube. The case appeared to be a *hæmato-salpinx*. In reply to inquiry from Dr. Stevens, whether the tube was ruptured, Dr. Keller said the tube was not ruptured, and that the hæmorrhage must have come from a ruptured vessel. The original clot where the hæmorrhage first began was plainly visible in the specimen as exhibited by Dr. Keller.

DR. HENRY O. MARCY exhibited a *dermoid cyst, weighing about ten pounds*, which he had removed from a woman about 35 years old; was assisted in the operation by Drs. Nelson and Cole. The abdomen was nearly the usual size at term. She had been under the care of two physicians who were so assured of pregnancy, that she had prepared the wardrobe for the expected infant. The diagnosis was doubtful, but the uterus, about three inches deep, could be differentiated from the tumor which was semi-solid. The tumor was removed with extreme difficulty, as it was more solid than fluid. The broad ligament was sewed off with the double stitch. The left tube was dilated with fluid to the size of a large sausage and the ovary was diseased. They were removed. The dermoid tumor was full of bony points, and had many cysts filled with colloid material. Patient made a good recovery.

Dr. Marcy also showed the *ovaries and tubes* which he had removed from a woman, æt. 30 years. She was very weak and hysterical, suffered great pain at her menses, and had been an invalid for six or seven years. The pain at the menses was such that she took morphine subcutaneously every two hours until a grain had been used.

Dr. Marcy further exhibited an *extra-mammary tumor of the left breast*, which he had removed from a widow, æt. 43, who had never been pregnant. There was no history of injury. It began a year ago as a small nodule to the left of the nipple. It is now double-fist size. There was no glandular enlargement in the axilla. Histologically, the tumor is a myxoma, the first case he had ever seen. It was behind the gland and was firmly attached to the pectoral muscle.

EXHIBITION OF NEW INSTRUMENTS.

DR. GEORGE W. JONES exhibited an *Improved Gynæsic Harness for the Retention of the Patient during Gynæsic or Rectal Operations*. Doubtless it will be conceded by most of you, who have had experience in these operations, that the most convenient position in which to place the patient for operation, is the dorsal; for in that position, the uterus and other organs are in the most normal position. Under these circumstances, however, you have also realized that the legs and feet of the patient must be taken care of and held out of the way, in order that the operator may do with facility and comfort whatever his hands find to do. To accomplish this and attend to the ether, at least three or four competent assistants are required; and such an array of heartless doctors

V. 18

before a timid patient, is many times trying to her nerves, and sometimes may be detrimental to the successful performance of a simple operation. In order to be useful, an appliance must be simple at the same time that it supplies requisite qualifications. This harness fills the requirements mentioned. It consists of the following parts, viz., a yoke, made by a piece of brass tubing twelve inches long, into each end of which another piece twelve inches long and of smaller size, slides perfectly. These two smaller pieces are curved in the proper manner for one-half their length, and a hook is attached to the curved end. As these pieces slide into the larger tube, they are held by thumb-screws at any required distance. The rest of the apparatus consists of a stout piece of webbing with a ring attached to each end, to go around the neck of the patient. To this webbing are fastened two short pieces, which go under the axilla and fasten to the rings in the ends of the neckpiece, thus preventing it from slipping up. Through each of these rings also, a narrower piece of webbing slides freely, with a ring at each end to fasten to the yoke before described. In using this harness, the patient being in the dorsal position, the webbing should be adjusted to the shoulders, then with the legs flexed upon the abdomen, the yoke can be placed under the knees, and attached to the rings at each end of the tapes. These tapes may be shortened or lengthened at will while in use, or they can be removed entirely in an instant if necessary in case of accident. The whole apparatus can be boiled or rendered aseptic in any manner most desirable. It can be taken apart in a moment and carried in the hand-bag with little additional weight or trouble.

I have also what I have styled the *Aseptic Universal Needle Holder*. It is eight and one-half inches long, with a smooth symmetrical handle, a unique spring-catch and a button joint. One of the special features of this instrument is the formation of the jaws. The upper half or blade is rounded on the inner or usually flat side, and it contains a groove of sufficient size to hold firmly a Hagedorn or any other needle, curved or straight. It is also of extra length, an advantage readily appreciated by any one, who has attempted to suture high up in the vagina with the ordinary short holder. Its symmetry and symplicity, and the fact that it can be taken apart and cleaned in the most thorough manner in a moment, render it the most aseptic needle holder made, and a valuable addition to the aseptic gynæcological or other instrument case.

The next instrument is an *Improved Dilator for Rapid Dilatation of the Cervix Uteri*. Although, as you see, it is very much like the "Wiley Dilator," yet it has some advantages over that instrument. One of the handles is curved, so that the hand of the operator does not obstruct the view of the part operated upon. Another improvement, and the principal one, lies in the joint, which is movable or a sort of toggle joint, which can be changed at pleasure, and extreme dilatation obtained if desirable. Moreover, if greater dilatation is desired at the external os, it may be obtained without too great tension being made on the internal os, and *vice versâ*. The instrument may be taken apart in a moment and rendered perfectly aseptic. Codman and Shurtleff will supply any of these instruments.

THE PRESIDENT, DR. HORACE C. WHITE, then delivered

THE ANNUAL ADDRESS,

which was listened to with marked attention and interest by the Society. He said: I will occupy but little of your valuable time in presenting a few rambling thoughts and suggestions, with regard to our Society.

In our eager search for scientific facts, and in the busy whirl of the routine of daily professional duties, time passes so rapidly that it is well sometimes to stop and look over what has been accomplished, and changes have taken and are taking place.

The Gynæcological Society of Boston has just completed its second decade. Twenty years ago, when this society, which claims to be a pioneer in its department, was formed, it would have been an easy task to have reviewed a year's progress, and perhaps that which had been written strictly upon this department of Medical Science, then in its swaddling clothes, in a single address, and not have exhausted the time alloted. A few ovariotomists, whose daring shocked their more conservative brethren, and whose percentage of death-rate would hardly have made their patients in haste to accept their services, constituted a large part of the abdominal surgery of that day. These were the advanced guard of the serried columns who now assault the well recognized foe, from every point of attack, and with numberless implements of warfare.

This Society was not only a pioneer, but it has done its share in causing Gynæcology to be recognized as an honorable science, and to reclaim it from opprobrium, and to place it upon a respected equality with other departments of medical science. Its founders were able, earnest, and conscientious men, who struggled with difficulties, which we of to-day, can hardly realize, and to them great credit is due for the honorable standing of the Society.

With familiarity in the use of anæsthetics and with the more recent discoveries which have given birth to antiseptic surgery, great advance has been made. The field has been continually broadening; like the progressive series it shows wonderful increase, until now it would seem

nearly impossible to bring anything like a complete review of a year's progess into a single address. If we should select a single operation and attempt to review all that has been said, written and done, we should exhaust our time long before we exhausted our subject. If a new principle of treatment or theory of disease were selected, we should still have the same almost unlimited mass to select from for discussion. Materials and methods of their use, as for instance sutures, needles and dressings, would be a fruitful source to draw from.

The use of electricity in its various forms, with its varied and ingeniously constructed batteries, its application as a remedial agent, both in medicine and surgery, its use to strengthen feeble vitality or to destroy diseased tissue, to promote growth or to retard overgrowth, to restore to life those who are apparently dead, or to take the life of those who are condemned to death, not mentioning its use as an accessory or convenience, such as lighting our houses and streets, ringing our door-bell whether we are awake or asleep, and summoning us, over the wire, by day or by night, with many other uses, this magical power, yet in its infancy, so far as its scientific and proper use is concerned, may, by the efforts which are being made to measure its power and estimate the resistance which it is capable of overcoming, be brought within the range of dosable remedies, and be a very important factor in the treatment of human maladies. A course of lectures might be written on this subject.

We recognize the fact that knowledge is increasing, that science is developing new truths, but what would he say now, who so long ago said "of making books there is no end?" If all that was written was truth unmixed with error, if there was no dross with the precious metal, we might soon expect the millenium of scientific knowledge, judging from the amount written; but while we believe that scientific knowledge is increasing, we cannot close our eyes to the fact that much that is advanced for truth will not stand the actual test. The growth of scientific knowledge like the growth of the body, is a slow process, costing great destruction of the old to bring in the new. Now if a review of a year's progress requires the discrimination between truth and error, a summarizing of what has been taught, that will stand the test of time and experience, then the task would present such a mountain of difficulties and impossibilities that no one would dare attempt to surmount them. It would be much easier and perhaps as profitable to follow the example of Artemas Ward, in his lecture on "The Babes in the Woods;" spend the whole of the time in telling why he did not lecture on this, that and the other subjects, and conclude his lecture by saying he had, therefore, made up his mind to lecture on "The Babes in the Woods."

During the past year we have held ten meetings, with an attendance varying from 25 to 75 per cent. of our membership. When we consider the imperative demands upon the time of a physician, which cannot be regulated by his wishes, and also the fact that two-thirds of our members reside outside of the city, this is not a bad record. We have had at nearly every meeting valuable papers and much profitable discussion. We have also had a large number of interesting and instructive pathological specimens exhibited, with detailed reports of cases and operations. Our by-laws have been revised and printed again with a list of the active members.

In September Dr. H. J. Harriman, who had served the Society as its Secretary so efficiently and faithfully during the past four years, was obliged to resign his office on account of ill health. The Society accepted his resignation with regret. In this connection, allow me to say that our Society records are a feature of which we may be justly proud. From the beginning it has been very fortunate in the selection of its Secretaries. This very important office, which combines the duties of Secretary and reporter, has been filled from the first by men who would be an honor to any medical society, as will be shown by inspection of its records. To Dr. Field, who so long and acceptably filled the office, the Society will be under perpetual obligation for having all the records neatly copied into suitable books up to the expiration of his term of service. I would recommend that this work be continued up to date.

Allow me further to recommend a plan suggested to me by the Secretary, which I think will do much toward keeping up the interest in the meetings, viz.: to have our reports promptly and regularly furnished to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for publication, and to have a sufficient number of "reprints" ordered by the Society so that each member may have a copy. By keeping these and getting them bound, if he chooses, each member will have, not a part, but all of the "transactions." This would serve to interest in the work those who cannot attend the meetings regularly. It would also be a stimulus to each to do his best work. I earnestly recommend this plan for your consideration, believing that it will be economical and valuable.

If the above plan is adopted, I would suggest the inquiry whether we might not enlarge our Society to include a number of physicians throughout New England, who are interested in Gynæcology. They might be able to attend but seldom, yet they might communicate to the Society their best thoughts and report interesting cases. A careful consideration of these matters is all I ask. I would recommend a revision of our list of corresponding members and a systematic effort to get contributions from them.

I take pleasure in announcing that the records and lists of members have been collected and are now in the hands of the Secretary. Our Society begins its third decade in a prosperous condition. May the future be one of increasing prosperity and usefulness. And now thanking you for the generous assistance you have always given me, and the unmerited honor you have conferred upon me, I will close, bespeaking for my successor the same cordial support which you have given me.

The following were elected

OFFICERS FOR THE ENSUING YEAR.

President—W. Symington Brown.
Vice-President—Augustus P. Clarke.
Treasurer—Charles W. Stevens.
Secretary—Samuel N. Nelson.
Committee on Membership—J. F. Frisbie, E. C. Keller, H. O. Marcy.
Pathological Committee—S. N. Nelson, I. W. Starbird, A. L. Norris.

DOMESTIC CORRESPONDENCE.

LETTER FROM NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Acute and Subacute Nephritis—The Academy of Medicine.

It is not often that one has the pleasure of listening to such a model of clearness, conciseness and completeness as the paper read by Dr. Francis Delafield at the last meeting of the Academy of Medicine, on *The Treatment of Acute and Subacute Nephritis*. He acknowledged at the outset that he had no new drug to propose or no new plan of treatment to advocate. It was rather his object to determine, if possible, how plans of treatment and drugs already employed were to be intelligently applied in individual cases of the disease; since it was of importance not only that patients should be cured of their disease, but that this cure should be effected as speedily and as completely as possible, or, if the disease was an incurable one, that life and the capacity for labor and for enjoyment should be prolonged to the utmost.

To give an idea of the methods of treatment ordinarily employed, he thought it would be sufficient to quote briefly from a French, a German and an American authority. These were, Labadie-Lagrave, in the *Nouveau Dictionaire de Medécine et de Chirurgie*, Strümpell's Practice, and Flint's Practice. Most authors, he went on to say after making the quotations, took much the same view of the treatment; that its main object is to make up for the diminished quantity of urine by acting on the skin and intestines, and that the principal danger of an acute nephritis is the accumulation of excrementitious substances in the blood. Some authors, in addition, believed that they could rest the kidneys while they were inflamed by producing diaphoresis or catharsis, and that such rest would diminish the severity of the nephritis. Some thought that by a sufficiently large injection of fluids the inflammatory products could be worked out of the kidneys; a procedure which seemed to be analogous to the treatment of scouring the blood, as practiced by some eclectics.

Digitalis, while regarded with apprehension by some, was warmly advocated by others as a diuretic, or as a remedy for the febrile movement. Morphine in considerable doses was employed by some for the relief of uræmic attacks; in small doses by others to relieve vomiting and restlessness; while still others deprecated its use under any circumstances. General bloodletting seemed to be restricted by most to the nephritis of pregnancy, and to the very severe forms of the disease attended from the first with high temperature and cerebral symptoms.

The disposition at the present time to direct attention and the treatment to the symptoms of the nephritis, rather than to the nephritis itself; to the dangers of a diminished excretion of urine, rather than to the bad effects of kidneys in a state of acute inflammation, is so general and decided, that he thought it might be wholesome to look at the subject from the opposite point of view, and to direct attention, not to the functions of the kidneys, but to the kidneys themselves. In order to do this it was necessary at once to separate the cases of acute nephritis from those of subacute nephritis; the condition of the patients being altogether different in the two classes.

1. *Acute Nephritis.*—Most of the cases of acute nephritis met with complicate scarlatina, diphtheria or pregnancy. Less frequently the nephritis complicates one of the other infectious diseases or severe inflammations, or it is a primary lesion. In all cases of acute nephritis one morbid change is constant, viz.: congestion and exudation from the blood-vessels. The exudation consists of blood serum, white blood cells and red blood cells, which escape for the most part into the tubes and are mixed with the urine, to a less extent into the stroma of the kidney. The principal part of the exudate is regularly serum, but in some cases the emigration of white blood cells is considerable, and in some cases with a large emigration of white blood cells the exudation of serum is but small.

Having referred to other lesions that may or may not be added to this constant change in the kidneys, he spoke of the symptoms varying according to the severity of the nephritis, and said that, in the very mild cases, the only symptom was a diminution in the quantity of the urine and the presence in it of the exudate from the kidneys—the albumin, casts, and red and white blood cells. In the more severe cases, he continued, the same changes in the urine exist, and there are

added constitutional symptoms, such as fever, prostration, loss of appetite, nausea, vomiting, and anæmia. In the still more severe cases there are also headache, delirium, stupor, convulsions, labored heart action, hypertrophy of the left ventricle, a pulse of high tension, and dropsy. In the cases in which the urine is suppressed for a number of days the patients develop alternating stupor and delirium, and pass into the typhoid state. The regular duration of a fairly developed acute nephritis seems to be about four weeks. Its natural termination, whether with or without treatment, is in recovery. But the more severe cases may prove fatal; while the cases in which there is from the first a growth of new connective tissue in the stroma are likely to become chronic.

As to the indications for treatment, in the very mild cases evidently no treatment is necessary, except to keep the patient in bed and on a fluid diet. In the more severe cases it is often proper to interfere in order to secure greater comfort and safety for the patient. The first of the different conditions which may call for treatment is the nephritis itself. It is to be remembered that although the quantity of urine voided is small, its quality is good; for it contains a fair proportion of excrementitious solids to the ounce of fluid; that convulsions and coma belong to the early days of a nephritis with scanty urine, while prolonged anuria is accompanied rather with the typhoid state; that the excretion of urine must naturally relieve the congestion of the kidneys, so that it is better for the kidney to perform its functions than to be at rest; that so long as the congestion of the kidneys persists the quantity of the urine will be diminished; and that a considerable diminution in the quantity of urine continued for one or two weeks is often borne perfectly well. It is not necessary, therefore, to pay attention to the diminished quantity and to try to make the skin or the intestines do the work of the kidneys. It is wiser, by relieving the congestion of these organs, to enable them to do their own work; knowing that the moment they begin to do this their congestion will be still further diminished, and that although the nephritis still continues, the excretion of urine may then be sufficient.

Fortunately, we have at our command means by which the congestion of the kidney can be materially reduced for short periods at all events. These means are: causing the blood to collect at the surface of the body by the application of heat to the entire skin; the use of dry cups, or wet cups, or heat over the lumbar region; the empirical use of calomel or sulphate of magnesia in small doses repeated at short intervals until the bowels begin to move; and the use of such drugs as will diminish the increased arterial tension. While the nephritis is still active, however, it is not to be expected that by the use of any means the urine will be brought up to its full normal quantity, but only that a sufficient quantity will be passed to ensure the safety of the patient. The febrile movement requires no treatment, while the prostration, loss of appetite, nausea and vomiting call only for rest in bed and a fluid diet. The anæmia ought unquestionably to be relieved, but while the nephritis is still active there appears to be no way in which this can be done with certainty. When convalescence is established the anæmia readily improves with the ordinary methods of treatment.

The cerebral symptoms are those to which most attention has been directed. There can be no question that they regularly accompany a contraction of the arteries with increased tension and a labored action of the heart. No matter what views one may entertain as to the cause of this change in the circulation, Dr. Delafield believes that treatment is best directed to the arteries themselves, rather than to the uncertain cause of their contraction. There are, fortunately, he said, drugs which act promptly and efficiently for this purpose, and the most suitable of these are aconite, chloral hydrate and opium; and these are preferably to be given in small doses and at regular intervals, so that their use can be continued for some time. It is wise to watch the condition of the heart and arteries and, as soon as the condition of increased arterial tension is developed, not to wait for the manifestation of the cerebral symptoms, but to try and relieve it at once.

The treatment of a case of acute nephritis resolves itself, therefore, into the treatment of the nephritis itself and of the contraction of the arteries which may accompany it. To carry out this treatment he said he could from experience strongly recommend the following routine: The patient is put to bed and restricted to a fluid diet; the entire skin is washed clean every day; for two successive days drachm doses of sulphate of magnesia are given ever hour until 1 oz. has been taken, or the bowels begin to move; after this the tincture of aconite is given in doses of 1 minim every hour. Within a few days the albumin in the urine will have diminished, the pulse will be soft, and the dropsy will have disappeared; but the patient will be anæmic. The milk is now gradually replaced by solid food, and iron and oxygen are given.

2. *Subacute Nephritis.*—The distinction between acute, subacute and chronic inflammations, while an arbitrary one, is often of real convenience, and Dr. Delafield regards this as especially true of nephritis. In acute nephritis, as has been seen, he went on to say, the inflammation is an acute and temporary one attended with congestion and exudation. The interference with the function of the kidney is only with the quantity of the urine; the urine that is produced being of good quality. The symptoms are due to the nephritis itself and to the accompanying contraction of the arterial

vessels. In subacute nephritis, on the contrary, the inflammation is subacute and long-continued; there is no congestion; the exudation is of the profuse, almost dropsical, character that we meet with in other subacute inflammations, such as pleurisy with effusion; and there are permanent changes in the stroma and glomeruli of the kidney. The interference with the functions of the kidney is not with the quantity of the urine, for this is often in excess, but with its quality; the proportion of solid matters steadily decreasing as the disease advances. The symptoms are largely due to the effect of the nephritis on the composition of the blood and the nutrition of the body. The anæmia, the dropsy, and the loss of strength are the prominent features of the disease. Contraction of the arteries is absent, or present only at intervals. The cerebral symptoms are chronic rather than acute. It may happen, however, that in the course of a subacute nephritis there will be exacerbations of the inflammation, during which the changes in the kidney and the symptoms are the same as those of an acute nephritis.

Subacute nephritis is especially common as a primary disease and as a sequel of scarlatina and diphtheria. The patients lose strength, they become anæmic, and they suffer from nausea, vomiting and diarrhœa. There may be inflammation of the retina, and the arteries are for the most part relaxed; but may sometimes be contracted. The cerebral symptoms are more frequently chronic than acute, and dropsy is apt to be a marked symptom. The urine may be somewhat diminished, but is often in excess. The specific gravity and quantity of solid matters excreted diminish as the disease progresses, while the quantity of albumin mixed with the urine is considerable.

Some of the patients continue to get worse in every way, and die within one or two years. Some of them exhibit some or all of the symptoms of the disease for weeks or months; then seem to be partly or completely well; then again become ill, and so may go on for many years, sometimes better, sometimes worse. In some of them acute exacerbations of the inflammation may give for a time the symptoms of acute nephritis. A very few seem to recover permanently. The conditions which require treatment in these cases are: 1, the subacute nephritis; 2, the changes in nutrition and the composition of the blood; 3, the dropsy; 4, the condition of the arteries; 5, the cerebral system; 6, the acute exacerbations of the inflammation.

For the nephritis itself the most efficient treatment is the residence of the patient in a suitable climate. The climate should be warm, and the particular locality selected should be one where the patient can lead an out-of-door life. If the patients remain in a cold climate it will be necessary to confine them to the house for much of the time. Except during the exacerbations of the nephritis, the patients should take as much of solid foods and fats as they can digest. The excessive use of milk and of the mineral waters is to be avoided. It is possible that the use of opium or of the bichloride of mercury may favorably affect the nephritis. The anæmia is a most important symptom. There is a diminution in the quantity of hæmoglobin and in the number of red blood cells. The most efficient treatment for this is the internal use of iron and the inhalation of oxygen, combined with massage and the relief of constipation. With this treatment in many of the patients the improvement is satisfactory, but in some no such improvement takes place. The dropsy may never be more than an inconvenience, or it may constitute the most distressing feature of the case. It is apt to reach its greatest development with low arterial tension and often with a large excretion of urine. In some cases the treatment of the anæmia and the regulation of the diet will answer at the same time for the treatment of the dropsy. In other cases it is necessary to employ different measures.

When a subacute nephritis has lasted for any length of time the quantity of urea excreted falls to 6 or 7 grains, or even less to the ounce. The patient ought, therefore, to pass 70 or more ounces of urine daily. If it is desired to diminish the dropsy by increasing the quanty of urine it is wise not to increase the urine more than will be sufficient to enable the patient to excrete his 500 grains of urea a day. The quantity of fluid which the patient drinks should be regulated, as far as possible, according to the quantity of urine passed; not allowing the former to exceed the latter. In the extreme cases of dropsy we are obliged to purge, to sweat, to puncture the skin, and to tap the serous cavities. But when these measures become necessary it means that the case is an unfavorable one.

The condition of the arteries and of the left ventricle of the heart should be watched throughout the disease. High arterial tension can often be controlled by nitro-glycerine, chloral hydrate, or opium. Low arterial tension can, theoretically, be heightened by digitalis or ergot, but Dr. Delafield has found no advantage in doing this. To avoid the cerebral symptoms it is necessary constantly to watch the excretion of urea and the condition of the arteries. The quantity of urine should be kept large enough to make up for its diminished solid contents, and increased arterial tension should be at once relieved. The acute exacerbations of subacute nephritis are to be managed in the same way as an attack of acute nephritis.

In conclusion, he remarked that, as he had stated at the beginning, he was not able to offer any new plans of treatment. He had simply tried to show that some of the old methods might perhaps be more intelligently applied, and that,

while symptoms had to be treated, this might be done largely with direct reference to the nephritis.

The paper was discussed by Drs. Jacobi, Loomis, Kinnicutt, Roosevelt, Winters, Lawrence Johnson, and others, and Dr. Delafield closed the discussion. In the course of his remarks he said that he had always found one difficulty about the subject in question. Whenever he commenced to talk about acute and subacute nephritis some one was sure to get off on to the discussion of chronic Bright's disease. He thought Dr. Jacobi had made a very good point in calling attention to the comparative frequency of acute and subacute nephritis. It was not by any means almost exclusively confined to scarlatina, as many practitioners seemed to think, but was met with in connection with many of the other acute fevers, and not infrequently as a primary affection also. Many young laborers went about their work while affected with acute or subacute nephritis, not considering themselves sufficiently ill to take to their beds, and thus very serious injury was liable to result.

As regards the matter of arterial tension, he thought it was necessary to draw a sharp line between cases of acute and subacute nephritis. When the affection was acute there could be no question that the quickest way to reduce the tension was by the use of small doses of calomel or sulphate of magnesia frequently repeated. This relief he believed to be due to the effect of the drug on the nephritis itself. Otherwise it was not easy to see how such agents acted, since in order to secure the best results their use should be suspended as soon as a distinct purgative action was produced. In order to relieve the arterial tension the calomel or sulphate of magnesia should be given every hour, just as in peritonitis. This effect having once been obtained, it could be sustained better by aconite in minute doses than by any other agent with which he was acquainted.

The moment that we had to deal with subacute nephritis the conditions were found to be altogether different, and no good results were to be any longer anticipated from the use of the agents mentioned. Here we employed the class of drugs which dilate the vessels, and nitro-glycerine and chloral hydrate were both efficient for this purpose. The use of digitalis did not apply to acute nephritis at all, and in subacute nephritis the indications for its employment had been very clearly pointed out by Dr. Loomis.

(Dr. Loomis had remarked that whenever in subacute nephritis heart trouble was met with we had a right to resort to digitalis or other cardiac tonics; but so long as arterial tension remained such agents would only do harm. If in any case with a tendency to heart failure the digitalis seemed to increase the quantity of urine voided he thought it ought to be employed, and it was perfectly safe to do so as long as this effect was noticed. If, on the other hand, arterial tension was present, digitalis would always diminish instead of increase the quantity of urine, and consequently it was clearly contraindicated in any such case.)

At the conclusion of Dr. Delafield's remarks the President, Dr. Loomis, announced that the Academy had secured the refusal of three lots for its contemplated new building on 43d street, near 5th avenue, the price of which was $90,000.

P. B. P.

MISCELLANY.

LETTERS RECEIVED.

Dr. H. B. Tanner, South Kaukauna, Wis.; Samuel H. Allen, Baltimore, Md.; Dr. Wm. G. Parrish, Burlington, N. J.; Dr. J. A. Freeman, Millington, Ill.; Dr. Ira B. Read, New York; American Oxygen Association, New York; Dr. R. Harvey Reed, Mansfield, O.; Dr. C. H. Bradley, Haverhill, Mass.; Singleton, Bonnel & Co., Chicago; Dr. J. L. Smith, Newport, N. H.; Lehn & Fink, New York; Dr. P. O. Hooper, Little Rock, Ark.; Dr. E. S. Elder, Indianapolis, Ind.; Dr. J. J. Rendleman, Cairo, Ill.; Dr. John B. Hamilton, Washington, D. C.; Dr. L. D. Tompkins, Cassopolis, Mich.; Johnson & Watson, Dayton, O.; E. G. Myers, Granville, O.; Percy Procter, Cincinnati, O.; Dr. Homer Johnson, Oberlin, O.; Dr. C. Rembe, Fayetteville, Ill.; Dr. H. H. Beverly, Pilgrim Lake, Tex.; Chas. E. Matthews & Bro., Chicago; M. J. Backenston, Philadelphia; Dr. E. J. Mathis, Energy, Miss.; Dr. M. R. Smith, McGrawville, N. Y.; Prof. Smith, Lexington, Ky.; Geo. P. Bower. Minneapolis, Minn.; Mrs. L. P. Fitch, Charles City, Ia.; Thos. Leeming & Co., New York; W. P. Marks, Garysville, Va.; Sohlesische Gesellschaft für vaterländische, Breslau, Germany; O. L. Denning, Philadelphia; Dr. L. Hummel, Philadelphia; Rubinat Co., New York; Health Restorative Co., New York; W. P. Cleary, New York; National Architect's Union, Philadelphia; H. W. Young, Kansas City, Mo.; Dr. F. J. Thornburg, Cincinnati, O.; Dr. A. C Wood, Owensboro, Ky.; Dr. W. E. Casselberry, City; A. J. Richer, Montreal, Can.; Jerome Kidder Mfg. Co., New York; Dr. Geo. W. Miller, Girard, Kan.; W. J. Anderson, Edbany, Miss.; Longmans, Green & Co., New York; Wood Bros., Jacksonville, Ill.; J. B. McBride, C. H. Stansbury, C. T. Hughes, S. G. Sevier, Louisville, Ky.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from March 16, 1889, to March 22, 1889.

Capt. Richard C. Newton, Asst. Surgeon, leave of absence granted in S. O. 27, November 21, 1888, is extended to include May 22, 1889, by direction of the Secretary of War. Par. 17, S. O. 64, A. G. O., Washington, March 19, 1889.

Capt. Richard C. Newton, Asst. Surgeon, resignation accepted by the President, to take effect May 22, 1889. Par. 18, S. O. 64, A. G. O., Washington, March 19, 1889.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending March 23, 1889.

Surgeon W. G. Farwell, detached from the receiving ship "Franklin" April 1, and to the Naval Hospital, Norfolk, Va.

Surgeon R. A. Marmion, ordered to the receiving ship "Franklin."

Surgeon N. McP. Ferebee, detached from the Naval Hospital, Norfolk, Va., and placed on waiting orders.